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LONDON SATURDAY NOVEMBER 4 1950

RARE FORMS OF PAROXYSMAL TRIGEMINAL NEURALGIA, AND THEIR RELATION TO DISSEMINATED SCLEROSIS

BY

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Fifteen years ago I published in this *Journal* (Harris, 1935) an account of three cases of "Paroxysmal Neuralgic Tic as a Sequel of Trigeminal Neuritis," which were similar in their mode of onset and course but of very doubtful origin. I have since seen two similar cases, but as one of them became complicated later by the development of disseminated sclerosis the question arises whether this disease can have been the essential cause in the remainder or whether this complication was merely a coincidence. The fact that disseminated sclerosis is so frequently a complication of the common form of paroxysmal trigeminal neuralgia, or trigeminal tic as I prefer to call it, is an important reason for reconsidering the possibility of this disease being the essential cause in the five cases I have met with in which a paroxysmal facial neuralgia has later developed, perhaps several years after a complete temporary numbness with anaesthesia of the whole of one side of the face and tongue, usually with loss of the sense of taste on that side of the tongue. These five cases were seen in 1914, 1927, 1935, 1942, and 1945, and their rarity will be apparent when their number is compared with the total of 1,622 cases of trigeminal tic that I have met with in private practice alone, excluding hospital cases whose notes are unavailable. Of these, 64 were complicated by disseminated sclerosis, or nearly 4%.

In 1940 I published an analysis of 1,433 of my cases, including 377 hospital cases (Harris, 1940). Since then I have seen 566 fresh cases, the two series consisting of 1,318 women and 681 men, or very nearly twice as many women as men. These figures should be large enough to prove the much greater liability of the female sex to trigeminal tic.

Three Earlier Cases Recalled

The three cases of trigeminal neuritis which I described in 1935 may be briefly recalled regarding their essential features. They varied a good deal in their ages—two men, aged 65 and 75, and a woman of 42. In none of these three cases was there any symptom of disseminated sclerosis, though this was specially looked for. The first symptom in all was the sudden onset of numbness of the whole of one side of the face, including the tongue, with anaesthesia so complete that the cheek or lip was bitten; in one case loss of taste on that side was also noted. This numbness lasted in the two men, Cases 1 and 3, for six weeks and six months, followed after three years and seven years respectively by the onset of violent pain in the eye and cheek, in one of the men spreading into the lower jaw. The pain was described as "a jumping pain, as quick as a flash of lightning—feels like a flaring fire," the pain gradually increasing in intensity until I saw them, when there was no trace of anaesthesia remaining. Case 1, whom I injected in 1914, required a second injection in 1919, and then remained free of all pain, with complete numbness and loss of taste on that side, until his death in 1930, aged 81. Case 3 was injected in March, 1935, and was still free of all pain, with numbness unaltered, when last heard from in August, 1939, aged 80. Case 2, the woman aged 42, was seen in 1932, when her trigeminal numbness gradually faded after lasting four years, and was then replaced by violent trigeminal tic. She was completely cured by Gasserian injection in August, 1932. She lives in Kenya, and to-day is still quite fit and well, 18 years afterwards, and has no sign of disseminated sclerosis, as her doctor brother wrote in August, 1950.

Later Cases

The two cases I have since met with of this curious type were both in women.

Case 4.—A married woman aged 47, whom I saw in March, 1942, gave the history that in 1916, when she was 21, she lost her husband and two brothers in the first world war, and almost at once "began to sleep on her feet," and would walk home in sleep from the village to her home. Within a few months sudden numbness developed over the whole of the right half of the face and tongue, with complete loss of taste on that side. This state lasted for a year, the numbness then passing off. Seven years later a sudden onset of violent neuralgia attacked the whole of the right side of the face "like needles, or a white-hot iron applied to the face." This varied at first so that she might be free for a year, but gradually the pain recurred more frequently until I saw her in 1942. For the previous six or seven years she had had increasing ataxia of the right arm and leg, with bladder weakness, which examination showed to be undoubtedly due to disseminated sclerosis. This disease therefore showed no clinical signs until 19 years after the commencement of the numbness of the face and 11 years after the onset of the trigeminal tic. I injected her right Gasserian ganglion the same day, producing total trigeminal anaesthesia, which was unchanged five days later, with cessation of the pain. A follow-up letter brought the reply, July 3, 1950: "No pain in the face; right limbs more useless; cannot get about."

Case 5.—An unmarried woman aged 62 saw me in September, 1945, on account of violent paroxysmal left facial neuralgia for the past three months, occurring frequently daily and mainly affecting the left lower jaw; she could scarcely eat or talk, or wash her face. She had been edentulous for the past 32 years. Twelve years previously, when aged 50, the whole

of the left side of her face became numbed one day in the summer, so that she could not feel her sister slap her face. This condition lasted for six weeks, and rather more than a year later trigeminal tic started in the left lower jaw and tongue, "like a needle in my face." This neuralgia lasted for two months, and then more or less disappeared, but not completely, for 11 years, when the severe type of tic returned. There was no anaesthesia of the face when I saw her, nor any sign of disseminated sclerosis. Gasserian injection, as in the previous four cases, completely cured her, producing total anaesthesia of the whole of the left trigeminal area. A follow-up letter in June, 1950, brought the reply that she was perfectly well, the numbness remained unaltered, and her limbs were strong, with no unsteadiness. In her case, therefore, disseminated sclerosis can be excluded.

Of these five cases of what I have called trigeminal neuritis one developed disseminated sclerosis 19 years after the appearance of the facial numbness and 11 years after the onset of the trigeminal tic. None of the remaining four cases have shown any sign of spinal disease, and in all of them numbness and anaesthesia of the face on one side was the initial symptom, and lasted a variable time from six weeks to four years, when trigeminal tic appeared after an interval varying from a few weeks to seven years. In every case the trigeminal tic was cured by Gasserian alcohol injection, just as in the common variety of trigeminal neuralgia or in those complicated by disseminated sclerosis.

The Question of Latent Disseminated Sclerosis

It is not uncommon for numbness and anaesthesia of one side of the face and tongue, including loss of taste, to develop as a transient phenomenon in the early stages of disseminated sclerosis (see Cases IV, V, VI in my paper: Harris, 1935), lasting a few weeks or even months, but none of these in my experience has afterwards developed the complication of trigeminal neuralgia; Cases IV and VI died in 1934 and 1947, and neither developed facial neuralgia. It is especially interesting that loss of taste occurred in these cases in addition to loss of pain and tactile sensation, the latter indicating a lesion of the nerve root, which has tactile and pressure fibres running to the principal sensory nucleus and the pain and temperature fibres which turn downwards into the spinal root of the fifth nerve. Such a lesion has been demonstrated post mortem in cases of disseminated sclerosis by Oppenheim (1911) and by Parker (1928), though clinical tests in their cases failed to demonstrate anaesthesia.

The path of the fibres carrying taste sensation is usually now agreed to be via the chorda tympani and the great superficial petrosal nerves, for the tongue and palate respectively, to the geniculate ganglion, and thence by the pars intermedia to join the glosso-pharyngeal fibres in the gustatory nucleus. Yet that this is not the whole story is proved by the demonstration of loss of taste in many clinical cases of fifth-nerve paralysis by competent observers (Gowers *et al.*, 1893), and I have been able to demonstrate immediate loss of taste on the front half of the tongue in dozens of cases of alcohol injection at the foramen ovale (Harris, 1926). Some of these recover the sense of taste after a few weeks or earlier; in others, even with total anaesthesia of the tongue, there may be no loss of taste whatever; and in others, again, in whom there is total and permanent anaesthesia from ganglion injection, the loss of taste may be permanent, as I have seen several times—in one case 24 years after the Gasserian injection.

That this gustatory loss is not produced by spread of the alcohol from the foramen ovale to the great superficial petrosal nerve and geniculate ganglion is shown by the loss of taste noticed by the patients themselves in several cases of the spontaneous trigeminal anaesthesia met with in cases of disseminated sclerosis. For further discussion on this difficult subject of the gustatory pathway, see Harris (1921).

The close similarity in the attacks of unilateral numbness and anaesthesia of the face and tongue, with loss of taste, in cases which subsequently develop trigeminal tic (trigeminal neuritis), and other cases with precisely similar facial anaesthesia with loss of taste which may precede but usually follow the onset of clinical signs of disseminated sclerosis, but which may not develop trigeminal tic subsequently, is strikingly suggestive of a similar origin in both groups. In neither form is there any motor fifth palsy, and the sensory loss is very suggestive of a lesion of the trigeminal root comparable to the well-known retrobulbar ocular neuritis in disseminated sclerosis, in which the large scotomata may disappear completely in certain cases after many weeks or months, or, as the motor pareses of the limbs may do, for many months or even years.

I have met with a few cases in which the trigeminal tic developed several years before any clinical signs of disseminated sclerosis appeared. In my paper on trigeminal neuritis I described Case VI, a man of 44 who developed temporary numbness of the right half of the face and of the left leg 18 years before the onset of symptoms of spinal disease suggestive of disseminated sclerosis. No trigeminal tic appeared in his case, and the crossed anaesthesia points almost certainly to a pontine lesion at the level of the sensory nucleus of the right fifth nerve, involving part of the median fillet on that side. He died completely paralysed in 1947, never having had facial neuralgia.

Of the two fresh cases I have described in this paper, it may be suggested that in Case 4 the sclerosis was already present but latent, a view which has been put forward by more than one writer. It raises the question whether in the remaining four of my cases disseminated sclerosis might be lying latent and originated the initial facial numbness and the subsequent neuralgia, in spite of the absence of any signs of spinal disease. I think it must be agreed that the histories of these four cases completely negative this supposition:

Case 1.—This man developed, at the age of 57, complete left facial anaesthesia lasting six weeks and followed two years later by left trigeminal tic. Final relief was given by Gasserian injection in 1919, when aged 70, and he died aged 81, having had no recurrence of pain or any sign of paralysis.

Case 2.—A woman aged 37 developed facial numbness which lasted four years, then trigeminal tic, for which she had Gasserian injection, in 1932, when aged 42. She is still quite well and strong 18 years after.

Case 3.—A man who developed right facial numbness at age 65. Trigeminal tic started seven years later, the numbness having lasted six months. Cured by Gasserian injection, aged 75. Still well and hearty five years later, aged 80.

Case 5.—A woman at the age of 50 developed left facial numbness, lasting six weeks, followed about a year later by trigeminal tic. This was cured at age 62 by Gasserian injection, in 1945. She is still (1950) perfectly well and strong, and the numbness is unaltered.

Disseminated sclerosis may surely be excluded in all these four cases. In Case 4, in which disseminated sclerosis developed 19 years after the onset of the facial numbness and 11 years after the trigeminal tic appeared, it is possible that the spinal disease may be coincidental, and that it has no connexion with the antecedent attack of trigeminal neuritis and subsequent tic.

Classification

The cases of trigeminal neuritis and other cases of neuritis and neuralgia complicating disseminated sclerosis may be divided into six groups:

1. Trigeminal neuritis, a rare form in which paroxysmal trigeminal neuralgia follows weeks, months, or years after a sudden development of temporary numbness and anaesthesia of one side of the face, with no complication of disseminated sclerosis.

2. Cases of disseminated sclerosis which develop trigeminal tic without antecedent numbness. This is the common type, of which I have met with 64 examples. Usually the spinal symptoms antedate the neuralgia, but occasionally the neuralgic tic may precede the spinal symptoms by several years.

3. Cases apparently similar to Group 1—trigeminal neuritis—but in which disseminated sclerosis develops years later, as in Case 4. Is the spinal disease merely coincidental, or is the antecedent trigeminal neuritis dependent on a latent sclerotic patch of disseminated sclerosis?

4. Cases of disseminated sclerosis in which numbness and facial anaesthesia may appear for weeks or months, with loss of taste on the same side, but no subsequent development of trigeminal tic, as in cases IV, V, and VI in my 1935 paper.

5. Cases of disseminated sclerosis in which numbness and facial anaesthesia on one side may be accompanied by numbness or paresis of the opposite arm or leg, suggestive of a lesion of the median fillet at the same time as of the sensory fifth nucleus.

6. Bilateral trigeminal tic is much commoner in proportion in cases of disseminated sclerosis than in uncomplicated cases of the neuralgia. This is suggestive of the scattered pontine patches of sclerosis being apt to irritate the spinal trigeminal roots on both sides.

The type of facial numbness, often with loss of taste, and its subsequent disappearance, appears to be identical in all these cases, and it seems highly probable that the lesion producing the numbness and facial anaesthesia is similar in all. It is probably a patch of neuritis on the root of the fifth nerve at its junction with the pons, a lesion which has been demonstrated at necropsy. This may leave the nerve fibres in an irritable state when the congestion and the anaesthesia disappear. This irritability, combined with sensory pain stimuli from the peripheral nerve branches in the jaws, may precipitate the onset of trigeminal tic (cases of trigeminal neuritis). In cases of disseminated sclerosis the sclerotic pontine patches may similarly act as an irritant to the pain fibres in the spinal root, and, aided by peripheral jaw painful stimuli, trigeminal tic may start. That the source of the stimuli is peripheral, not central, is definitely shown by the fact that in cases of trigeminal neuritis the pain does not begin until the anaesthetic block completely disappears. I have for many years maintained that in the common form of paroxysmal trigeminal neuralgia the source of the pain is in the peripheral nerve fibres in the jaws. There are many arguments to prove this thesis. (1) The anatomical distribution of the pain, and the absence of any anaesthesia or other evidence of lesion of the nerve trunks or Gasserian ganglion. (2) The frequency of cases of severe damage to a jaw by trauma, fracture, or severe dental extractions, followed shortly after by typical trigeminal tic. For example, a woman had a severe molar extraction, the dentist breaking his forceps and leaving a piece of steel in the jaw. Trigeminal tic started within three weeks. Fifteen years afterwards radiographs showed the piece of steel in the jaw. The following is perhaps a better argument: (3) The fact that an anaesthetic block by injection or nerve section instantly arrests the neuralgia, though neuralgic pain due to irritation of the fifth nerve intracranially by a basal tumour will continue in spite of posterior-nerve-root section in front of the lesion.

Anaesthesia of the Third Division

I would like to record here a curious fact that I have noticed during the 40 years or so that I have practised alcoholic trigeminal injection at the foramen ovale. It is that occasionally I have found it exceedingly difficult, and sometimes impossible, to obtain satisfactory anaesthesia of the third division, supplying the lower jaw and gum, tongue, and lower lip. In some of these cases it has been easy to obtain total anaesthesia of the ophthalmic and maxillary divisions of the Gasserian ganglion, and yet repeated attempts to inject the mandibular division may completely or partially fail, and the neuralgia may continue. Were it not that I have known this same difficulty confront six first-class neurosurgeons when operating for posterior-sensory-root resection, I might be content to ascribe my few failures to my own incompetence. One such case was operated on many years ago by the late Sir Percy Sargent and also by Mr. Wilfred Trotter, after I had failed with injection; but the neuralgia continued, and the lower lip, chin, tongue, and lower gum remained sensitive.

The following case is perhaps even more instructive:

A married woman aged 38 was seen by me in April, 1928, with the following history. In 1919, when aged 29, four teeth were extracted from the left lower jaw under a general anaesthetic, the jaw being fractured, as shown by radiographs, and the left inferior dental nerve damaged. Pain continued as a constant ache, and then sharp sudden jabs shooting along the mandible, brought on by eating or by moving the tongue or jaw—clearly a development of true trigeminal tic. Small sequestra continued to come away from the wound in the gum, and as the neuralgia continued she was injected with alcohol by the late James Collier, but no increase of the partial anaesthesia of the lip or gum was produced. She felt better afterwards, and the spasms of pain became less violent; they gradually disappeared during 1920, and she was free for 18 months, as is common in the early history of trigeminal tic. In 1922 she had a recurrence of pain for three months, and was free for six years until 1928, when I saw her. There was then very slight anaesthesia of the chin, lip, and tongue, and I injected her Gasserian ganglion through the foramen ovale in July, getting total anaesthesia of the two upper divisions but no alteration of V3, and the pain persisted. I then sent her to Mr. Hugh Cairns, at the London Hospital (he was not then Sir Hugh). He told me afterwards that at the operation he found the dural sheath adherent, and could not open the arachnoid sheath, but he divided the sensory root so far as possible. Probably the adhesions were the result of the alcohol injections. No further anaesthesia resulted, however, and the pain continued for a time, but she had a long intermission of freedom for 14 years from 1929 to 1943, when in December the neuralgia again became severe. I admitted her to Maida Vale Hospital in March, 1944, and again tried to inject the third division through the foramen ovale, by both lateral and anterior routes, but entirely failed to increase the slight anaesthesia. I then sent her to Mr. Wylie McKissock, at the Atkinson Morley Hospital. He operated through the posterior fossa, dividing the fifth root close to the pons. The upper two divisions had been totally anaesthetic since my injection in July, 1928, but no increase of the anaesthesia of the third division resulted from this last operation, and the pain continued as before when she returned to Maida Vale in September, and persisted unaltered until her death in December, 1946.

I have given the names of the surgeons, who did their best to help me, so that there may be no doubt that the operations were done with the utmost skill; but how to explain the escape of the mandibular division from its numerous medical and surgical assaults is beyond me. It is, however, a further illustration of my thesis that occasionally the mandibular nerve is extremely difficult, if not impossible, to destroy.

Medullary Thrombosis

A fairly well known and interesting syndrome is that produced by thrombosis of one of the posterior inferior cerebellar arteries. This vessel, the largest branch of the vertebral artery, which is the first branch given off from the subclavian, winds backwards round the upper part of the medulla between the vagus and spinal accessory nerves, and over the restiform body to the under surface of the cerebellum, where it divides into two branches, external and internal. The latter supplies the middle lobe of the cerebellum and the side of the medulla. Hence thrombosis of this vessel will involve the spinal descending root of the trigeminal nerve (uncrossed) and the spinothalamic tract (crossed) ascending to the thalamus, causing analgesia of the face on the same side and of the trunk and limbs on the opposite side. Paraesthesiae and pain may occur in both these areas, and occasionally the facial neuralgia may be severe and shooting in character, resembling tabetic pains. It is not affected by light touches or by movements of the face, as in eating or talking, as is the case in true trigeminal tic, nor is this form of neuralgia amenable to Gasserian injection. Vertigo and vomiting and nystagmus may be early symptoms, with incoordination of the arm and leg on the same side and unsteady gait due to the cerebellar infarction.

Pontine Thrombosis

Thrombosis higher up in the pons, above the level of the decussation of the pyramids and of the ascending sensory tracts forming the median fillet, is apt to cause hemianaesthesia of the face, limbs, and trunk on the opposite side. The following case suggests the effect of a small pontine lesion involving the trigeminal fillet more than the spino-thalamic fibres, while the main sensory fillet close by must have escaped.

Case 6.—A woman aged 43 was sent to me in January, 1944, with a history of sudden onset of pain ten years before in the left upper jaw, across the cheek, down the mandible, and into the tongue, with pain in the left hand, the left fingers being contracted. The face felt at first as if on fire, and facial neuralgia has continued at intervals ever since, though the pain in the left hand faded and disappeared after four years. The facial neuralgia continued mainly in the left cheek, jaw, and side of nose, with momentary sharp shoots in the left lower jaw many times daily and occasionally at night. Two years later the neuralgia was limited entirely to the cheek and side of nose. There was no objective sensory loss to touch or pinprick anywhere, and no motor weakness, though the left forearm jerk was slightly increased. The plantar reflexes were flexor.

This case was sent to me as trigeminal neuralgia for Gasserian injection, but as investigation showed the lesion to be intrapontine, and localized to the neighbourhood of the right median fillet, no alcohol injection was indicated. The type of pain was similar to that met with after posterior inferior cerebellar thrombosis, and differed from the pains of trigeminal tic in not being started by the movements of eating and talking or by light touches.

The neuralgic pains in these medullary lesions resemble tabetic pains somewhat closely, and the sclerotic lesions of the posterior columns and roots in tabes may be compared with the sclerotic lesions of intramedullary and intrapontine fillet thrombosis.

Paroxysmal Supraorbital Neuralgia, Spontaneous and Post-traumatic

Under this heading I do not wish to include the sinus headaches of antral and frontal infections, migrainous neuralgias, or the post-traumatic dural headaches following concussion and subdural haemorrhage.

Case 7.—A man when aged 49 received a severe blow on his right eye from a squash ball which made him "see stars" badly. About three weeks later, when driving his car, he was attacked by sudden violent pain in the right eye, and had to stop, the pain lasting an hour. There was no congestion of the eye, no lacrimation, and no vomiting. Similar attacks recurred for a few weeks until he was fitted with glasses for reading. Then he was quite free for four years, when similar intermittent attacks recurred, two or three daily, lasting about an hour, for three or four weeks. Another intermission for two years occurred until three weeks before I saw him in December, 1946. He was having much domestic worry at that time, to which he ascribed the return of the pain, although the seizures were quite sudden. Partial inner Gasserian injection, causing analgesia of the two upper trigeminal areas, cured the paroxysmal attacks, and he has been free for the last three and a half years, except for some constant aching in the right eye lately. This is possibly aggravated by heavy business work and family worry, and also by the strain of driving daily 46 miles to and from business.

The diagnosis of the cause of these sudden attacks of violent pain is difficult. They closely resemble post-traumatic ciliary neuralgia, but without the ocular congestion and lacrimation usual in that condition. The pain is referred to the eyeball rather than to the supraorbital area, and as nothing wrong can be found with the eye I class it as a post-traumatic ciliary type.

Paroxysmal Trigeminal Tic Affecting the Supraorbital Area Only

Case 8.—A man aged 54 was sent to me a year ago on account of violent neuralgia which had been recurring in spasms for the past seven weeks. His first attack had occurred 23 years ago, at the age of 31, the pain starting suddenly at the inner canthus of the left eye and shooting up over the forehead. These spasms, lasting 10 to 15 minutes, recurred at intervals for the following fortnight, and since then at intervals of four or five years. He describes the pain as being hot, "like a firework," and almost unbearable, and for seven weeks it had been worse than ever. I realized this was a true case of trigeminal tic affecting only the ophthalmic division, although it has persisted in that division until the present time, the longest period I have known this type to be limited to the first division without invading the maxillary area. Usually after three or four years or less this spasmodic neuralgia spreads to the second division, the pain running down the side of the nose and into the upper jaw and cheek to the upper lip. The patient would not agree to a Gasserian injection, and I therefore gave a local procaine-and-alcohol injection to the supraorbital notch in May, 1949. This caused only partial numbness, the nerve not having been well hit, and the spasms continued for another two weeks, then disappearing until June, 1950, when violent spasms of pain recurred as before. He again asked for a supraorbital injection rather than Gasserian, and this time I obtained total anaesthesia of the left half of the forehead, eyelid, and scalp as high as the vertex. The painful spasms, however, persisted for several days unless he kept perfectly still in bed, light touches on the left side of the face starting off the pain, and he now admitted that the left upper lip was sensitive, a touch on it starting the supraorbital pain. This proved at long last that the second division was becoming involved.

Although it is quite common for the first onset of pain in trigeminal tic to involve both the ophthalmic and second divisions of the nerve at the same time, it is rare for this type of paroxysmal neuralgia to affect the supraorbital area or the eye alone. When this is the case I have known it continue thus for three or four years, and even once for nine years, but this last case, in which the neuralgia was limited to the inner canthus of the eye and the supraorbital area for 23 years before showing signs of involvement of the second division, is unique in my experience. At the same time it should be noted that total anaesthesia of the

supraorbital nerve area did little or nothing to relieve the pain, indicating that the source of the neuralgia was deeper and would require an inner Gasserian alcohol injection or a fractional section of the inner half of the sensory root to cure it.

Glossopharyngeal tic, though very much rarer than the trigeminal form, perhaps in the order of 1 to 100 cases, is now better known since I first described it (Harris, 1921). It is still often confounded with trigeminal tic or with otic or geniculate neuralgia, but its definite characteristics should be sufficient to distinguish it. The pain is usually felt on swallowing, and often runs into the ear, which may become so sensitive that the patient will leave the ear for years unwashed. Touches on the tonsil will often start the pain, which is referred to the throat and ear and to the back of the cheek in front of the ear. The painful paroxysms recall the trigeminal type, and the only cure is avulsion of the nerve.

The nerve may be irritated by a basal tumour, and trigeminal tic may also be closely simulated by intracranial pressure from an acoustic neuroma or other basal tumour, such as an intracranial aneurysm of the internal carotid artery.

Summary

Five cases of a form of trigeminal neuritis are described in which paroxysmal trigeminal tic follows at varying intervals after a period of total unilateral facial numbness.

The question whether the cases of trigeminal neuritis described are due to latent disseminated sclerosis is considered disproved.

Paroxysmal trigeminal tic occurs in a considerable proportion of cases of disseminated sclerosis, without previous numbness and anaesthesia of the face.

In many cases of disseminated sclerosis temporary numbness of one side of the face may occur, with anaesthesia and loss of taste on that side. These cases do not later develop paroxysmal trigeminal tic.

Loss of taste, either temporary or permanent, on the front of the tongue is commonly found in unilateral fifth-nerve paralysis in addition to the spontaneous cases of numbness in trigeminal neuritis and in disseminated sclerosis.

Analysis of 2,000 cases of trigeminal tic shows that this neuralgia occurs about twice as often in women as in men.

The lesion producing the numbness and anaesthesia of the face in trigeminal neuritis is probably a root neuritis of the fifth nerve close to or just inside the pons.

The frequency of trigeminal tic, unilateral and bilateral, in disseminated sclerosis is almost certainly due to local irritation of the trigeminal spinal root by the diffuse patches of sclerosis in the pons.

Rare forms of trigeminal pain due to medullary or pontine thrombotic lesions are described.

An occasional difficulty—even impossibility—in producing total anaesthesia and cure of third-division neuralgia, either by injection or by surgical root resection, is described.

Reasons are given for ascribing the origin of trigeminal tic to peripheral causes in the end-nerve filaments in the jaws.

Paroxysmal trigeminal tic of the ophthalmic division is compared with post-traumatic supraorbital pain resembling ciliary neuralgia.

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PROLONGED TREATMENT OF RHEUMATOID ARTHRITIS WITH A.C.T.H. ALONE AND WITH GOLD*

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From the first publications of Hench *et al.* (1949) and Thorn *et al.* (1949) the following conclusions can be drawn: (1) adrenocorticotropic hormone (A.C.T.H.) has a very favourable effect on the symptoms of rheumatoid arthritis, (2) the symptoms reappear when the administration of A.C.T.H. is discontinued, and (3) with the dosage used untoward reactions appear. When, in October, 1949, a certain quantity of A.C.T.H. ("cortrophine," Organon†) was put at our disposal, we set ourselves to search for a maintenance dose which would keep the rheumatic process under control but cause no untoward reactions; and to inactivate the rheumatic process with A.C.T.H., and during its administration to begin with one of the approved medical therapies, in the hope that no relapse would then occur after discontinuation of the A.C.T.H. injections.

Here, therefore, we concern ourselves exclusively with clinical application. The theoretical bases and the pathophysiological and chemical problems of A.C.T.H. therapy have been dealt with in the comprehensive survey with extensive bibliography of Boland (1950).

Plan of Study

Three women and two men with rheumatoid arthritis, and one man with ankylosing spondylitis, were selected for treatment. The diagnosis was based on the results of the clinical data, biopsies, *x*-ray photographs, serology, and other non-specific data such as sedimentation rate (Westergren), haemoglobin, etc. In view of the fact that we were striving to find an effective treatment for rheumatoid arthritis, complete rest in bed was prescribed for all the patients for a fortnight before and after the beginning of the A.C.T.H. treatment. This was followed by a period of graded re-educative remedial exercises and mobilization. Spectacular exertions, of which some patients were already capable after a few days, were thus intentionally avoided.

During the pre-treatment period a thorough physical examination was carried out, with special documentation of the condition of the joints (ergometry, measuring, photographing, and filming of the swellings and of limitations of function). Special laboratory investigations were made of kidney function (concentration, phenol red, urea clearance), liver function (galactose-tolerance test, van den Bergh reaction, prothrombin index, cholesterol

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†We are much indebted to Organon, Oss (Holland), who kindly supplied us with the pituitary adrenocorticotropic hormone used in these studies.

esters, alkaline phosphatase, Hanger test, bromsulphalein test), adrenocortical function (insulin tolerance test, Robinson–Power–Kepler test, total neutral urinary 17-ketosteroids), as well as routine blood smears and counts, and electrocardiograms. There was no restriction of food, apart from a low salt content (about 2 g. NaCl a day), but the composition of the diet was noted daily. No balance studies were made, since we wanted to find the best treatment, and it seemed advisable not to interfere with an increased appetite, from which the patient might benefit.

During the treatment period the investigations were repeated at regular intervals, and at first the blood pressure was taken daily and the weight recorded weekly.

The general scheme of treatment was :

1st day: 3 × 25 mg. A.C.T.H. intramuscularly, with application of Thorn tests after the first injection.
3 days: 6 × 10 mg. A.C.T.H.
10 days: 6 × 7 mg. A.C.T.H.
2 weeks: 6 × 3 mg. A.C.T.H.
2 weeks: 6 × 2 mg. A.C.T.H.
2 weeks: 6 × 1 mg. A.C.T.H.

The dose of A.C.T.H. is expressed in mg. of an American standard preparation. The different lots used have been assayed in accordance with the Sayers test. The equivalent of 25 mg. American standard preparation contains: vasopressin and oxytocin: *lot 1*, 0.33–0.66 E ; *lot 2a*, 0.7–0.9 E ; *lot 3x*, 0.125 E ; *lot 4*, 0.35–0.70 ; prolactin, none ; thyrotropic and gonadotropic hormone, a very small amount or none.

In determining the quantity of A.C.T.H. to be injected, we followed the basic idea that, after an optimal improvement with a relatively high dosage, the condition could be stabilized with a low maintenance dose.

Sayers *et al.* (1949) and Li (1950) found that already a very short time after injection A.C.T.H. could not be detected in the blood. We therefore considered the possibility that frequent injections might give better results. The 14-day limit was chosen, as any possible relapse would almost certainly fall within this period. Diagnosis of a relapse was based on the reappearance of signs and symptoms of arthritis, in addition to a rise in sedimentation rate (E.S.R. expressed throughout as 1 hour/2 hours value).

Case 1

A woman aged 37—height, 5 ft. 4½ in. (1.64 m.); weight, 7 st. 2 lb. (45.4 kg.)—had had rheumatoid arthritis since 1942, beginning 10 days after fifth delivery. During the first few years treatment with various courses of gold therapy was successful, but a relapse occurred about six weeks after each course. A complete remission during pregnancy in 1948 lasted until three days after delivery. She was a thin, tired woman, not looking ill ; the rheumatic process was localized chiefly to the shoulders, elbows, and hands ; the mammae were atrophic ; and there were remains of a " gold " dermatitis to the right of the mouth. E.S.R. 14/32, Hb 12 g.%. During the last few years menses were irregular, with sometimes an interval of a few months.

With the A.C.T.H. dosage the articular symptoms reacted very quickly, the stiffness first, then the pain, and finally, on the third day, the swelling. On the second day the patient could comb her hair for the first time in five months ; the next day she could take off her wedding ring for the first time in four years. On the ninth day the dermatitis, which had been visible for four years, had disappeared. The increasing appetite was no less striking.

From this time improvement in her general condition was less spectacular, but progress continued during the fifth and sixth weeks (6×2 mg. A.C.T.H. per day). The E.S.R. fell to 1/3, her complaints were limited to tenderness on pressure or painfulness on motion of some proximal interphalangeal joints. Fatigue, however, still persisted. On the 39th day the dosage was decreased to 6×1 mg., and seven days later the E.S.R. was 5/12, while two days later she complained of slight pain in the right forearm, followed after another five days by measurable swelling of the second metacarpo-phalangeal joint of the right index finger. Most of these symptoms disappeared again with one day of 5×7 mg., and then daily 5×3 mg. of A.C.T.H. At the same time (72nd day) gold treatment was begun.

It is known that at the beginning of gold treatment the E.S.R. often rises and the condition of the patient may temporarily deteriorate. The A.C.T.H. was maintained at 5×3 mg. a day for seven weeks. During this period her condition did in fact grow worse, combined with objective signs in the right shoulder, the right elbow, and some proximal interphalangeal joints, but was definitely less serious than on admission. As soon as the optimal condition was reached again the A.C.T.H. dosage was gradually decreased by one injection a day, while the gold treatment was continued. The gradual decrease in the A.C.T.H. dosage seemed desirable to avoid possible symptoms of a temporary shortage of endogenous A.C.T.H.

On the 138th day A.C.T.H. was discontinued ; the patient had by then received a total of 1,960 mg. of A.C.T.H. and 1,540 mg. of gold (aurothioglucose). The gold treatment was then continued with a maintenance dose of 50 mg. once every two weeks. Fourteen weeks later the patient's condition showed a slight but clearly visible deterioration: some finger-joints were swollen again. The gain in weight was maintained (see Fig. 1), E.S.R. 10/25, Hb 12.2 g.%, menses regular, mammae containing glandular and fatty tissue, fatigue less evident.

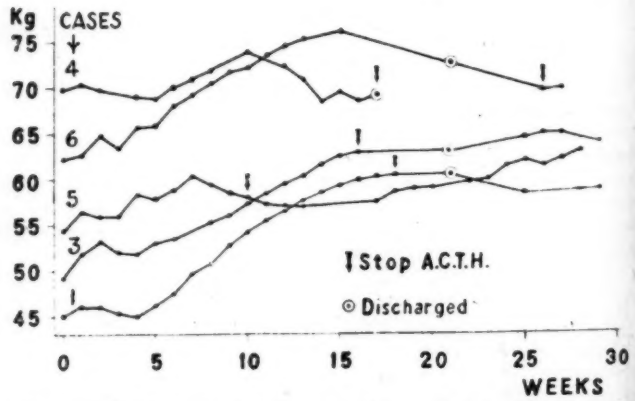

FIG. 1.—Weight records of five patients treated with A.C.T.H. The weight of the sixth was taken only once, at the beginning of the treatment, as the clinical condition did not permit movement of the patient.

Case 2

A man aged 44—height 5 ft. 6 in. (1.68 m.), weight 9 st. 2 lb. (58 kg.)—had had severe rheumatoid arthritis and psoriasis since 1939, with some complete remissions. Varying success with many types of therapy: amidopyrine (" pyramidon "), gold, manganese preparations, *x* rays, etc. Since January, 1949, in bad condition, with no favourable reaction to any therapy.

He was an emaciated man, suffering severe pains, looking very ill, with temperature continuously subfebrile to febrile (minimum 37.5° C., maximum 40° C.), blood culture repeatedly negative, E.S.R. 145/154, Hb 8.05 g.%. There was very extensive psoriasis, which latterly had a tendency to improve, and extensive abnormalities characteristic of rheumatoid arthritis in practically all the joints, with contracture and subluxation of both knees.

The severity of this case induced us to prolong the initial period of high-dosage A.C.T.H. On the second day with maximum temperature 37.5° C., his appetite was considerably increased, and he slept well and felt much better. On the fourth day swelling of the left hand began to decrease. The affected joints gradually became less painful, and after a week he needed hardly any analgesic, which before he had used in large quantities. The skin symptoms also showed a rapid improvement. In the third week of treatment the temperature

rose once to 38° C., while the E.S.R., which had dropped to 51/78, was up to 75/108, with the psoriasis worse and the rheumatic complaints showing no further improvement. Dosage was still 6×7 mg. at this time. On the 32nd day of treatment dosage was decreased to 6×3 mg. because of our small supply of A.C.T.H., and his temperature rose almost immediately to a maximum of 39° C., the E.S.R. became 138/150, and swelling of the joints and pains increased, especially in the hands.

An attempt was made to check the process with a relatively high dosage (6×15 mg.) and then to maintain the improved condition with a smaller quantity of A.C.T.H. At first there was the usual favourable effect; the temperature returned to normal, and only the psoriasis did not improve. After a few days of 6×10 mg. a relapse occurred. On the 75th day the A.C.T.H. therapy was discontinued and the treatment with gold begun, while amidopyrine had already been given for a few days. The condition of the rheumatic process remained stationary, but the psoriasis had meanwhile assumed very serious proportions and was of an atypical erythrodermatic nature with strong livid colouring. On the 99th day the A.C.T.H. therapy was resumed with a dosage of 8×3 mg. This produced only a slight temporary effect. On the 125th day the A.C.T.H. was finally stopped after a gradual decrease of the number of daily injections.

In all, this patient received 3,170 mg. of A.C.T.H. in two periods of 75 and 27 days respectively, with an interval of 23 days. After this the psoriasis got gradually worse and the rheumatic process took a mutilating form. The patient became cachectic and died approximately 16 weeks after the last A.C.T.H. injection. Necropsy showed bronchopneumonia and atrophy of the adrenal cortex, especially of the zona glomerulosa, with local fibrosis and depletion of lipoids. Microscopical examination of the hypophysis is being carried out.

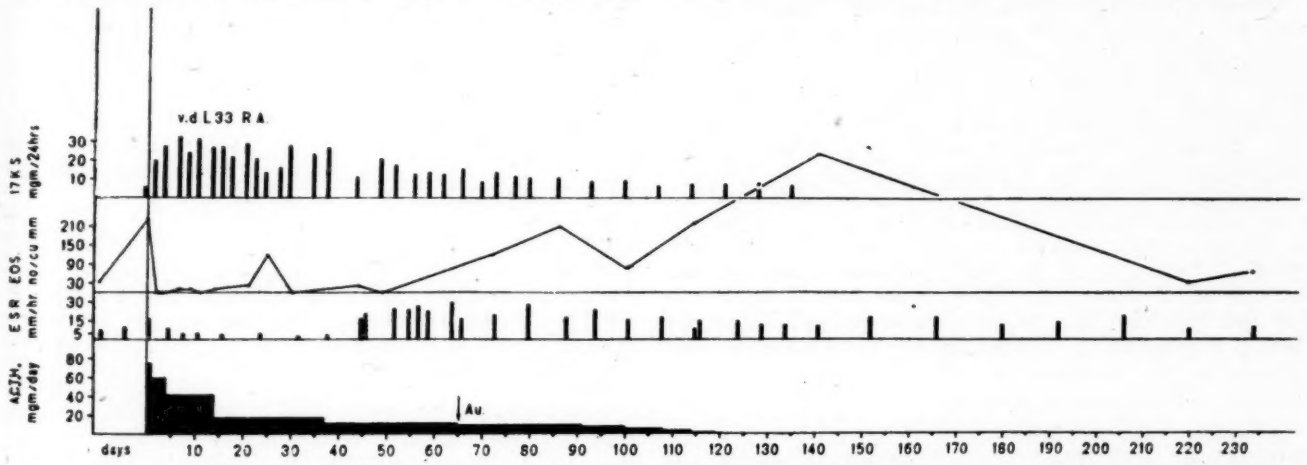

FIG. 2.—Case 3. Rheumatoid arthritis treated with diminishing doses of A.C.T.H. Gold therapy began on the 65th day and continued with a maintenance dose of 50 mg., administered once every two weeks in the out-patient department. (The top chart shows 17-ketosteroid excretion.)

Case 3

A woman aged 33—height 5 ft. 7¼ in. (1.72 m.), weight 7 st. 10 lb. (49.2 kg.)—had had rheumatoid arthritis since 1937, with secondary osteoarthritis of both knee-joints, moderately active and slowly progressive. The patient several times received gold therapy, to which she reacted favourably in the beginning, but not at a later stage. Other forms of treatment were unsuccessful. Several days before each menstruation the pain and stiffness of the joints increased and became most severe during the first two days of each cycle. She was a pale, thin, gloomy woman, with the hands, wrists, elbows, knees, and feet affected. E.S.R. 15/36, Hb 11.6 g.%. With this patient the clinical course of the illness corresponded roughly to that of Case 1. After 30 days' treatment she had only slight pain in the knees when walking upstairs. In the seventh week of treatment (dosage 6×2 mg.), she had a common cold. The E.S.R., which had fallen to 4/10, rose to 24/27. There were no joint complaints. In view of the intercurrent infection, we decided not to lower the dosage to 6×1 mg., and thus deviated from the scheme. Experience with Cases 1, 5, and 6 indicates that this last dose is too small. In view of the shortage of A.C.T.H., we did not dare to risk a relapse, which would compel a temporary increase in dose. On the 65th day gold treatment was started; on the 120th day the patient received her last A.C.T.H. after gradual decrease in the number of daily injections. The patient had had by then a total of 1,839 mg. A.C.T.H. and almost 1,500 mg. aurothioglucose. She received a maintenance dose of aurothioglucose of 50 mg. once every two weeks. Sixteen weeks later her condition was still excellent, with only minimal complaints of the knees. E.S.R. 10/24, Hb 11.3 g.%. Her weight remained constant at 64 kg., and she was very satisfied and cheerful (see Fig. 2).

During treatment her menses became slightly irregular, the shortest cycle being 18 days. In spite of the satisfactory therapeutic results, premenstrual intensification of joint symptoms sometimes recurred. Repeated endometrial biopsies revealed both ovulatory and anovulatory bleeding. We were unable to find a correlation between the occurrence of premenstrual complaints and the type of bleeding.

Case 4

A man aged 65—height 5 ft. 7 in. (1.70 m.), weight 11 st. (70 kg.)—had had rheumatoid arthritis since 1942 with contracture of the knee-joints. Various reactions to many kinds of treatment—e.g., gold (last series of injections in 1947), amidopyrine, salicylate, "atophan," "menformon," etc. He had a somewhat grey complexion (aurosis?), but otherwise looked healthy. He was sullen and made no effort to cooperate. The rheumatic process had affected practically all the joints, with a rheumatic nodule on the right elbow and secondary osteoarthritis of both knees. On further physical examination no abnormalities were found, except a trace of pretibial oedema. E.S.R. 125/135, Hb 10.9 g.%. Since February, 1948, he had albuminuria, a full analysis of which had been made elsewhere. Blood pressure, blood urea, renal function, and urine sediment were normal during that period: this was confirmed on admission here. The congo-red test was negative. It was difficult to decide whether we had to deal with a late gold nephrosis of long standing or an albuminuria as an accompanying symptom of rheumatoid arthritis (Schneiderbaur, 1938; *New Engl. J. Med.*, 1947).

In this case of rheumatoid arthritis, too, a very striking reaction was observed at the beginning of treatment. On the 16th day the E.S.R. had fallen to 15/33, and there were no complaints of pain; the swelling had gone, and even the contracture of the knee-joints had diminished. The nodule could no longer be felt. The patient had also undergone a change and become friendly and cheerful. After the dosage had been decreased to 6×3 mg. the E.S.R. rose again (54/68). A higher dosage (6×7 mg.) produced only a temporary fall. After 26 days with 6×7 mg. the E.S.R. was again 120/126.

It is possible that the first rise in the E.S.R. was the result of a knee regression, the second of an intercurrent cold. It is noteworthy that both times the patient had no joint complaints, while objective symptoms of relapse were also absent. On the 60th day the A.C.T.H. therapy was stopped owing to lack of material. The following day signs and symptoms of arthritis reappeared. On the 73rd day A.C.T.H. was once more available and the patient received 8×3 mg. The clinical condition now improved considerably, but the E.S.R. remained very high.

Finally we gradually lowered the dosage by decreasing the number of injections. The patient received a total of 2,625 mg. A.C.T.H. in 118 days. A change-over to amidopyrine had to be stopped because of granulocytopenia.

Because of the albuminuria we were very cautious in the administration of gold. The patient received only a few injections containing a very small quantity of gold. These were immediately discontinued when erythrocytes appeared in the urine. According to the few data available, the albuminuria had since February, 1948, gradually risen from 0.5 to 3 g. per litre. During the two treatment periods the variations were so pronounced (2–40%) that it seemed impossible to draw any conclusion on the influence of A.C.T.H. on the albuminuria.

At his own request the patient left the hospital. On the day of departure a blood sample was taken. When the laboratory reported that the blood urea had risen considerably (96 mg. per 100 ml.) he had already gone. Soon afterwards he was admitted elsewhere. Five weeks after the last A.C.T.H. injection the patient died of uraemia. Necropsy was not performed.

Case 5

A woman aged 56—height 5 ft. 7½ in. (1.71 m.), weight 8 st. 12 lb. (56.5 kg.)—had had very active rheumatoid arthritis since 1948, but received no treatment. The process was localized to practically all the joints, with slight contracture of both knees. E.S.R. 126/153; Hb 10 g.%. She was undernourished, could hardly walk a few yards, and was sullen and unfriendly. A few abnormalities were discovered during the routine examination; the Robinson–Power–Kepler test was positive, the quantity of urine excreted during the night (500 ml.) being more than the largest quantity (320 ml.) excreted during the day (factor A=17.5). With the insulin tolerance test, the lowering of blood-sugar values was insufficient and occurred too late, the initial level not being reached after two hours.

The articular signs and symptoms improved within an extraordinarily short time from the start of treatment, and the E.S.R. dropped linearly to a level of 10/22 on the 12th day. In view of this favourable effect and the rapid rise in excretion of 17-ketosteroids in the urine (maximum 53.5 mg. per 24 hours) and the high blood-sugar level with the abnormal glucose tolerance test, we lowered the dosage more rapidly: four days 6×7 mg., followed by six days 6×3 mg. and 16 days 6×2 mg. On the 15th day of treatment the pain and swelling of the joints had completely disappeared. In the subsequent period during which the dosage was 6×1 mg., a relapse occurred with a rise of the E.S.R.

With one day on 5×7 mg. and then 5×3 mg., the patient again reached an optimal condition. At this point a gold treatment was started. As pronounced diabetes had meanwhile developed (see below), we decided to stop the A.C.T.H. (on the 66th day). Next day there was an acute and violent swelling of several metacarpo-phalangeal joints, with redness and distended veins suggestive of gout. This disappeared after a few days, while a relapse of the rheumatoid arthritis gradually became perceptible in all the previously affected joints, the process being, however, clinically less violent than on admission. The clinical treatment with gold and physiotherapy was continued. Four months after the cessation of A.C.T.H. administration the patient's general condition was tolerable.

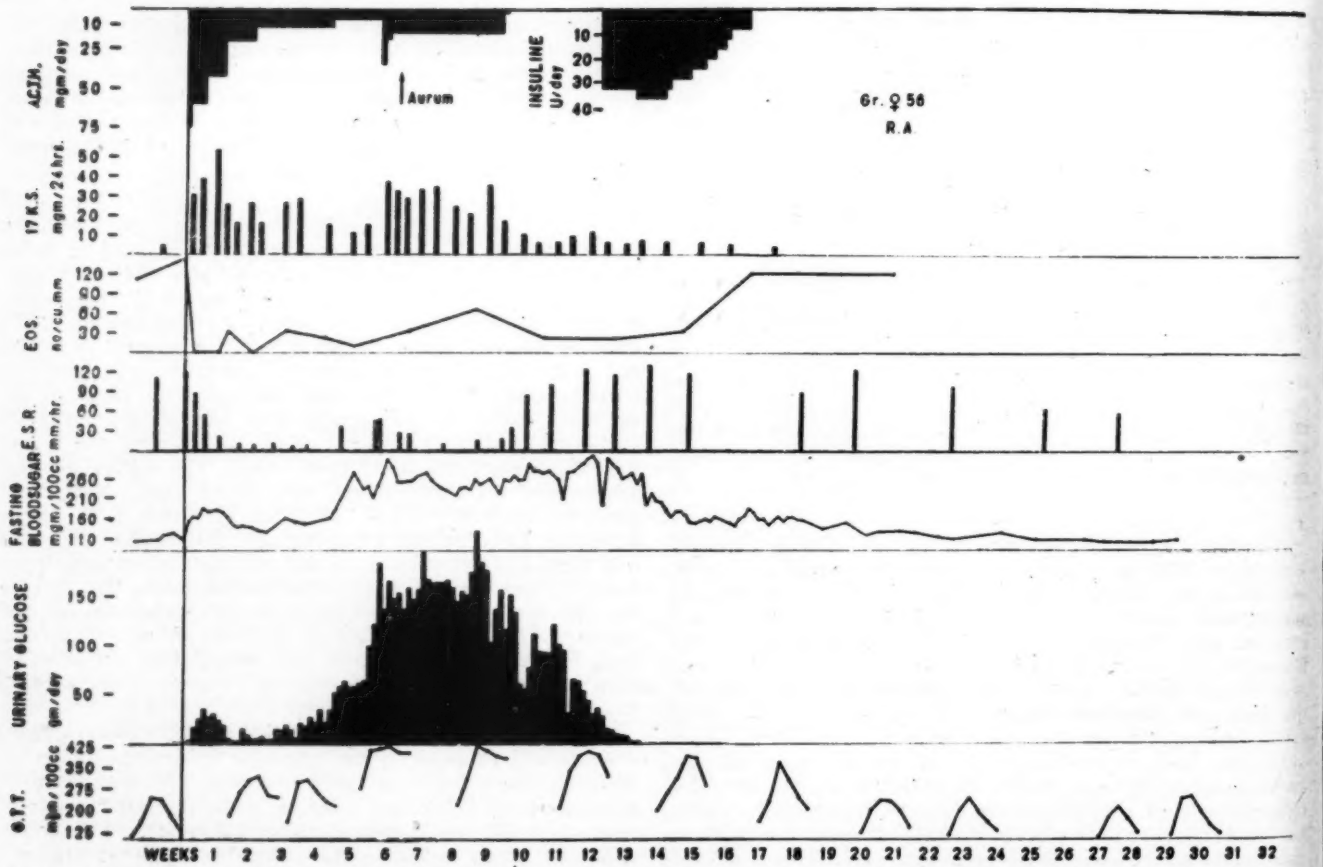

FIG. 3.—Case 5. Rheumatoid arthritis treated with A.C.T.H. The total daily dose of A.C.T.H. was divided over six injections, that of insulin over two injections.

↑Aurum = First day of gold therapy. E.S.R. = First hour value obtained by Westergren method. G.T.T. = The blood sugar was determined initially before the oral administration of 50 g. of glucose, and ½ hour, 1 hour, 1½ hours, 2 hours, and 2½ hours later.

the rheumatic process much less active, and the E.S.R. 58/79; she could then walk fairly well.

Special Observations

As stated, the patient had an abnormal blood-sugar curve to start with. Her fasting blood-sugar values were constantly at the upper limit of normal or abnormally high (110/136 mg. per 100 ml.). During the first days of treatment they rose to a maximum of 187 mg. per 100 ml., and then gradually returned to the initial level. In the first week the glycosuria was maximally 34 g. daily, which was much more than with the other patients. These signs of disordered carbohydrate metabolism at first diminished, then suddenly progressively increased during the low dosage of 6×1 mg. (fasting blood sugar 250 mg. per 100 ml., glycosuria up to 200 g.). It is possible that an intercurrent cold was a provocative agent in this case. When during four weeks the diabetes did not improve we decided to discontinue the A.C.T.H. therapy (66th day). The fasting blood-sugar levels remained high, and the glycosuria diminished slightly (the greatly decreased food intake during the relapse occurring in this period must be taken into account). When, after a few weeks, the condition remained unchanged, though perhaps on a lower level, we gave the patient insulin. With a relatively low dosage (maximum of 36 units daily), administered during one month in gradually diminishing quantities, the starting condition was reached three months after the last A.C.T.H. injection (see Fig. 3).

As a second untoward reaction, we must report a series of symptoms which were a result of vascular occlusion: paraesthesiae in the fingers, with cold finger-tips; at a later period disappearance of the radial pulse and failure to register oscillation on oscillometric examination of the left upper arm; and finally a homonymous hemianopsia on the left side as a result of an occlusion of the right posterior cerebral artery. Whether the A.C.T.H. can be held responsible for the vascular signs in this patient is unknown. An arteriosclerotic retina was diagnosed before the treatment, and the renal threshold for glucose excretion was too high. The already existing pre-diabetic condition also seems to point to general arteriosclerosis. The occlusion of the radial artery was accompanied by relatively slight clinical signs of decreased peripheral arterial blood supply. This points to a good collateral circulation and a vascular obliteration which has developed very slowly, again suggesting a diminished circulation before the administration of A.C.T.H.

It is also worthy of note that a parotid swelling (chronic parotitis ?) which the patient had shown for some years disappeared completely after four days of A.C.T.H. injections, to reappear only two months after cessation of this treatment. Biopsy revealed a (sub-)chronic inflammation with lymphocytic infiltration.

Case 6

A man aged 32—height 5 ft. 7¼ in. (1.71 m.), weight 9 st. 11 lb. (62.1 kg.), known to us since 1947 as suffering from ankylosing spondylitis with typical *x*-ray signs in the sacro-iliac joints and vertebral column. He had been treated several times with *x* rays and amidopyrine, with varying success. The E.S.R. was never lower than 45/80.

He showed severe spinal stiffness, and was unable to attend to his administrative activities; E.S.R. 73/115, Hb 12.2 g.%. The E.C.G. showed a short P–R interval and prolonged QRS time.

A.C.T.H. treatment had a very rapid effect. On the morning of the third day the patient could leave his plaster bed without help, which he had never been able to do before. This as well as the increased 17-ketosteroid excretion (maximum 67.8 mg. in 24 hours) was sufficient reason for us to lower the dosage more rapidly than originally planned. After 15 days the patient received 6×2 mg. A.C.T.H. a day, the E.S.R. being at that moment 4/9. Except for the sudden appearance of an auricular fibrillation (see below), the clinical progress continued uninterrupted, and the mobility of the vertebral column increased regularly. After the patient had received 6×1 mg. daily for a week, there was a slight relapse and the E.S.R. rose to 45/84. With a dosage of 5×7 mg. for a day, followed by 5×3 mg. for 39 days, the complaints once again rapidly disappeared and the E.S.R. dropped, though more slowly than at the beginning. In this period amidopyrine medication was started, while the A.C.T.H. dosage was gradually and regularly reduced, as in the case of patients 1 and 3. With one dose of 3 mg. a day the complaints began to return (17th week). Amidopyrine, in combination with 2×3 mg. A.C.T.H. a day, created a very satisfactory condition, however. This scheme of treatment was continued for 42 days in the out-patient department; the patient had already resumed his normal activities (16th week). On the 175th day the A.C.T.H. treatment was finally stopped and the patient's condition remained satisfactory. The E.S.R. did not run parallel with the good clinical condition and fluctuated round values of 45/70. The weight remained constant.

The abnormal E.C.G. has already been mentioned. Auricular fibrillation occurred on the 23rd day, and the E.C.G. showed that this fibrillation was a rapid one with aberrant ventricular complexes. The patient reacted promptly to quinidine sulphate, and the A.C.T.H. therapy was continued. No more sudden attacks occurred. The A.C.T.H. was not necessarily directly responsible for the auricular fibrillation, for it can appear spontaneously with the mentioned pre-existing E.C.G. alterations.

Laboratory Data

Thorn Tests.—These were performed on the first day of treatment after administration of 25 mg. A.C.T.H. intramuscularly. Circulating eosinophils were counted in the counting-chamber (diluting solution: eosin 0.1 g., 40% formol 1 ml., distilled water to 100).* In five of our six cases a fall of more than 50% was noticed after four hours. In some this fall still continued after that time. In Case 2 there had been an eosinopenia for more than a year before treatment. The rise of more than 50% in the U/C ratio was seen only in three of the six patients (Cases 1, 3, and 4). There was no correlation between the results of these tests and a good clinical reaction, and no connexion could be shown between the reappearance of eosinophilic cells and the occurrence of a relapse.

Carbohydrate Metabolism.—In all cases there was a rise of the fasting blood sugar, which returned to normal with lower dosage. The glucose-tolerance curves were temporarily of a lag type. The most striking deviations were found in Case 5 with diabetes. The other two women showed only temporary glycosuria. There was no ketonuria, the CO_2-combining power of the blood fluctuated, but remained within normal limits.

Electrolyte Metabolism.—In view of the fact that retention of sodium and chloride was expected, combined with an increased potassium excretion, we prescribed a low-sodium diet (about 2 g. NaCl) and 4–5 g. potassium daily. The blood values remained strikingly constant. With all the patients we noticed an almost complete disappearance of sodium and a great decrease in the amount of chloride in the urine during the first days. Parallel with this there was a slight retention of fluid in the first week. No oedema was seen, and the blood pressure remained constant.

17-Ketosteroids.—The urinary excretion of the neutral 17-ketosteroids increased considerably, reaching its maximum after about a week. This maximum was about 30 mg. per 24 hours, except in Cases 5 and 6, in which it was about 60 mg. During the further course of A.C.T.H. treatment these values diminished, but they

*This method has been used in our department for the last four years and has proved to be satisfactory in all respects. It was described for the first time by Zollikofer (*Zeitschrift für mikroskopische Technik*, 1901).

always remained above the initial levels, which were on the whole subnormal. After discontinuation of A.C.T.H. therapy there was a rapid return to the initial value. Results of a chromatographic analysis of the 17-ketosteroid mixture produced under influence of A.C.T.H. will be discussed elsewhere.

Serology.—The following serological tests were regularly performed: anti-streptolysin-titre, L and O agglutination, and the modified Rose test (van Loghem-Langereis, 1950). The clinical condition and the values of the titres showed a distinct parallelism (see table). We are here at variance with the results obtained by Ragan *et al.* (1949). The explanation may be that our period of observation was longer.

Table Showing Changes in the Serological Reactions in Case 3. A.C.T.H. was Administered During 120 Days

Day of Treatment	A.S.T.	L Aggl.	O Aggl.	Sensitized Sheep Cell Aggl.
	80	160	160	32
1	80	80	160	16
8	80	160	160	0
16	50	20	160	8
24	32	20	40	0
31	40	0	180	0
52	25	20	0	0
66	45	0	20	0
80	45	0	20	0
94	125	0	40	6
115	70	0	40	0
134	70	0	40	8
194	80	0	40	0

X-ray Photographs.—No change occurred in *x*-ray pictures of the joints.

Temperature.—Apart from the change already recorded in Case 2, we saw an immediate drop of 0.5° to 1° C. in some of the patients, even in cases where the temperature was apparently normal before treatment.

Weight.—With all the patients, appetite increased from the first day. On an average, the need for calories was roughly doubled. In accordance with this, there was a regular increase in weight, which certainly cannot be explained on the basis of fluid retention (see Fig. 1).

Untoward Reactions

Apart from the untoward reactions recorded in the clinical reports of the individual patients, the following details seem worthy of note. After the first injections, two women (Cases 1 and 3) complained of vague spasms in the abdomen (uterus ?), which were difficult to locate. These spasms disappeared spontaneously after a few minutes. A few weeks after the beginning of the treatment, all the patients developed acne, chiefly in the face. The female patients showed a slight increase of hair on the cheeks, upper lip, and extremities. The face became fuller, but a real "moonface" was not to be observed. The pigmentation of the skin increased more or less intensely, diffused as well as localized in freckles, in the folds of the skin, and on places of venepuncture, injections, biopsy scars, Pirquet reactions, and, in Case 3, on the elbows and the knuckles of the hands. All the symptoms mentioned disappeared during the protracted lower A.C.T.H. dosage (see Figs. 4 and 5). We were very much struck by the similarity of these pigmentations to those seen in Addison's disease.

General Remarks on Dosage

On the results of experiments, Li suggested the desirability of dividing the daily dose over several injections. We think this suggestion may be of importance to the clinician. On transition from 4 × 5 mg. to 6 × 3 mg. (Case 1), the laboratory data indicated an intensified adrenocortical activity, which was fully comparable to that at the beginning of the administration of A.C.T.H.: retention of water, Na and Cl; K excretion; glycosuria with increased fasting blood-sugar values; and increase of the 17-ketosteroid excretion.

FIG. 4.—Case 3. Pigmentation of the hand on the 62nd day of treatment. Dosage 6×2 mg. A.C.T.H. daily; total amount received. 1,359 mg.

From our studies, we are inclined to draw the conclusion that the dosages originally indicated by Hench *et al.* (1949), Thorn *et al.* (1949), Elkinton *et al.* (1949), Markson (1949), and other authors are too high for moderately severe cases. This view has meanwhile also been expressed by other workers (Mach *et al.*, 1950; Bröchner-Mortensen *et al.*, 1949). We, too, perhaps set the initial dose too high. This dose leads to a rapid decrease of the E.S.R. with remarkable improvement of the clinical condition, but at the same time causes signs and symptoms of hyperfunction of the adrenal cortex. During the protracted low dosage thereafter these untoward reactions mostly disappeared again, while the rheumatic process remained favourably

FIG. 5.—Case 3. Return to normal condition—14 weeks after last A.C.T.H. injection.

(The two photographs were taken under identical conditions.)

affected. It thus seems worth investigating in the future what can be achieved with a lower dosage from the beginning, even though results may be obtained more slowly. It may be possible to avoid untoward reactions in this way. And with clinical application in cases of rheumatoid arthritis it is not always necessary to make the patients reach an optimal condition in a very short time.

In four cases (1, 3, 5, 6) it was possible to maintain the clinical remission with 6×2 mg. In three cases (1, 5, 6) the dose was lowered to 6×1 mg. a day; in all three the result was a relapse. Two patients (2, 4) had a recurrence of signs and symptoms with a higher dosage (6×10 mg. and 6×7 mg. respectively). Both were serious cases complicated by other affections.

Summary

Five patients with rheumatoid arthritis and one with ankylosing spondylitis have been treated with A.C.T.H. in low dosage over a period of two to six months.

In three moderately severe cases of rheumatoid arthritis and in one serious case of ankylosing spondylitis the result was favourable. In two cases of rheumatoid arthritis with a complication (psoriasis, albuminuria) the improvement was temporary and relapse occurred in spite of a repetition of the initial high dosage.

The condition of the four favourable cases was maintained with 6×2 mg. of A.C.T.H. daily. A dosage of only 6×1 mg. daily resulted in a relapse in three of them.

An attempt was made to maintain their improved condition with gold therapy. More experience with this combined treatment is required before conclusions can be drawn.

The commonly known untoward reactions were observed in a varying degree. One patient developed a serious diabetes and also showed symptoms of vascular occlusion. These phenomena gradually disappeared with a low dosage or after discontinuation of the A.C.T.H.

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BURNS—I. INITIAL TREATMENT, LOCAL AND GENERAL*

BY

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A very considerable number of articles have been written on this subject during the last 10 years. The purpose of this paper is not to present anything new, but to emphasize certain points which, while often neglected, are essential if the objects of treatment are to be achieved. In brief, these objects are to restore the patient to his or her normal mode of living in the shortest possible time and with the minimum loss of function and disfigurement.

Success in these aims will be greater in those hospitals where there exists a plan of treatment from admission to discharge—a plan understood and adopted by all concerned Experience may be a great teacher, but the registrars and house-surgeons, who so often play a major part in these cases, should from the outset have available the experience of their seniors; otherwise their bitterness will be as nothing compared with that of the patient.

Prevention and First Aid

Between wars, burns continue to occur with depressing frequency (Colebrook, 1950); depressing because so many could be avoided by common-sense methods. Fireguards should be essential, and not luxuries, wherever there are children or known cases of epilepsy in the household The shining red element of an electric fire is an object of attraction to a child—an object to be grasped by the exploring hand with possible crippling consequences, and yet so easily avoided if the fire is fixed high up on the wall of the room. Tea-pots, tea-cups, and cooking utensils should be placed out of reach of a child's hand.

Immediately after the injury the patient will be suffering from shock of nervous origin—that is, akin to fainting. For this condition the treatment consists in keeping the patient warm (not hot), giving sweet drinks, and imparting calm reassurance. The use of narcotics will depend upon the presence of a doctor and the absence of any other undiagnosed injury.

The burned areas should be covered with the cleanest material available at the site of the accident, varying from sterile gauze in factory dressing stations to the cleanest linen material in the home, kept in position by firm but not tight bandages. Blisters should not be punctured. Clothing should not be removed unless there is a considerable delay before a hospital can be reached.

Burns Units

The Burns Unit of the Birmingham Accident Hospital, designed and planned with such magnificent results by Bourdillon and Colebrook (1946), is something to envy. With the present financial state of the National Health Service it is unlikely that other cities will be so fortunate. A compromise, representing a very definite step in the right direction, was reached by Professor Kilner during the war: it involved the sacrifice of a corner of the ward by converting it into a completely enclosed dressing-room. The expense involved is small and the beds are reduced by only one. Burns should not be dressed in the general ward.

*Read in opening a discussion in the Section of Surgery at the Annual Meeting of the British Medical Association, Liverpool, 1950.

Cleansing and Anaesthesia

The aim of the cleansing is to eliminate any bacteria on the burnt surface and on a considerable area of adjacent unharmed skin. Most authorities are agreed that the best agent for this purpose is a 1% solution of "cetavlon" (cetrimide, *B.P.C.*), which is both detergent and bactericidal. Gentleness must be the theme; the areas must be washed, not rubbed or scrubbed. Rubbing or scrubbing cannot do any good, and may easily damage or destroy unburnt layers in a case of partial thickness loss. The procedure should be regarded as a major operation, with all the usual preparation of personnel, but opinion is divided on the question of a general anaesthetic. Some prefer to rely on an analgesic with a dosage table covering all ages (Wallace, 1948), whilst others, including myself, employ a "light" general, using gas and oxygen supplemented if required with a little cyclopropane. Cyclopropane has the advantage of being comparatively non-toxic and capable of administration with large percentages of oxygen (Gray, 1946—personal communication).

Initial Dressings

The dressing is planned not as a mere cover, but with two distinct objectives. The first is to reduce the risk of infection and cross-infection so far as is possible—a risk to be borne in mind from the beginning to the end of the treatment. After seven years' experience, I still prefer the Bunyan–Stannard envelope method, full details of which have appeared in the literature (Bunyan, 1941; Hudson, 1941; Osborne, 1944). Alternatively, I would recommend either the use of vaselined gauze (Allen and Koch, 1942) or penicillin cream 400 units to the gramme (Clark *et al.*, 1943; Colebrook, 1950), with the local application extending beyond the burn, and wool and crêpe bandage well beyond the gauze. The bandages should be fixed by strapping which extends on to unburnt skin, or, especially in children, by a light plaster shell (Colebrook *et al.*, 1947), the aim being to prevent their becoming loose by movement or the exploring hands of the child.

The second object is to reduce the oozing and oedema due to the escape of plasma contents from the capillaries into the surrounding tissues. Unless resorption takes place within a few days the plasma becomes converted into a gel, followed by the proliferation of fibroblasts with subsequent fibrosis. To overcome this complication the use of pressure is implied (Allen and Koch, 1942). The pressure supplied by a dressing is neither a measurable nor a constant quantity; what is required is firm but not tight bandaging over a moderately bulky dressing or over the Stannard envelope. Such dressings should include the whole of the limb so as to avoid constriction with further oedema distally.

Plaster-of-Paris has been advocated on very sound principles (Barnes, 1943), but tragedies in the form of gangrene have been seen when such a dressing has been applied by the unskilled. The best and only constant pressure is the atmospheric. Elevation is thus indicated. Limbs should be elevated by suspension (arm with the hand splinted in position of function to a saline stand, leg with foot and back splint to a Balkan beam) and not by resting upon a heap of pillows. The elevation begins the moment the patient returns to the ward, and is maintained for 72 hours. Thereafter the limb is lowered for gradually increasing periods according to the initial severity.

Change of Dressing

Subsequent dressing of burns should be carried out with the same care and asepsis as at the initial dressing: it should therefore not be performed in the general ward. Equally important is it that the patient's confidence should not be lost: there must be neither tears nor fears.

When an envelope is used, daily irrigations can be begun on the fourth day. Other types of dressing can be left until the tenth to the fourteenth day unless, (*a*) they have worked loose or been disturbed; (*b*) there is a staining of the bandages due to discharge from beneath—for in the presence of this there is an excellent track for the entry of organisms; (*c*) there is a persistent elevation of temperature not otherwise explained; or (*d*) if β-haemolytic streptococci are found in the smears taken at the initial cleansing. The majority of the partial-thickness burns will have healed during this period; on those that have not, the initial type of dressing should be renewed for a further four or five days.

Full-thickness Skin Burns

When the initial dressing is changed on the tenth to the fourteenth day the slough of a full-thickness skin burn should be starting to separate. Since the object of treatment should be to carry out skin-grafting as soon as possible, the aim must be to hasten separation of the slough. Clearly, surgical excision is the most rapid method, and when possible this should be done, but only if the surgeon is prepared to apply skin grafts two or three days later. If he is not so prepared, then the case should be transferred to a department where this can be done. Otherwise a totally unnecessary drain is placed on the patient's reserves, infection is inevitable, and scar contracture unavoidable, even if grafts are eventually applied. In small burns, especially industrial or electrical, it is possible to excise the burned area within a day or two after the injury. In the larger burns, however, the general condition of the patient generally makes it unwise to excise until the second week. That the excision is complete will be evident when bleeding tissue is reached, and it is this bleeding which often prevents immediate application of skin grafts.

If surgical excision is not carried out the type of dressing should be changed on the tenth to the fourteenth day. Instead of the initial penicillin cream, a chlorine-containing compound, such as eusol, Dakin's solution, or "milton," should be used in the form of compresses over tulle gras changed every 24 or 48 hours. It is at this stage that the Bunyan envelope method is most valuable, for by it the risk of added infection associated with frequent changes of dressing is reduced to a minimum. Furthermore, such dressings can be associated with pain, especially in children. There are two other methods of hastening the separation of sloughs—the first being saline baths, used with such success by Sir Archibald McIndoe (1940) during the last war. A continuous flow of saline, at a thermostatically controlled warm temperature, runs through the bath, into which the patient is placed by trained orderlies. The burns are thoroughly irrigated by the saline, and the patient experiences great comfort.

There is finally the use of such agents as pyruvic or phosphoric acid (Connor and Harvey, 1946) as primary local applications to the burned surface, changed every two or three days. This is said to lead to the complete separation of the slough in 10 to 12 days without damage to the underlying tissue. Enough is not yet known of the method in this country to pass any comment, but answers to inquiries made during a visit to America suggested that it is not without pain.

To summarize, in dealing with a full-thickness skin burn the aim should be to graft as soon as possible, preferably after surgical excision, but, failing this, immediately flat. red, firm, healthy (that is, no haemolytic streptococci present) granulation tissue is present.

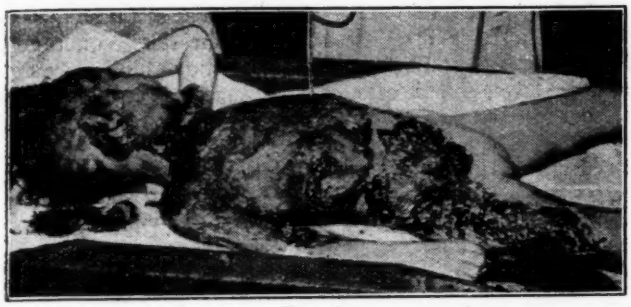

FIG. 1.

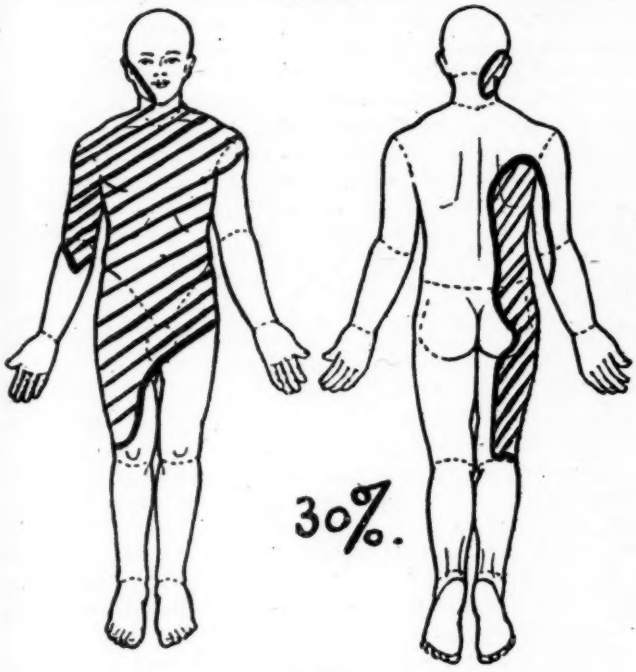

FIG. 2.

FIGS. 1 and 2.—Condition of child aged 4 with full-thickness burns involving 30% of body surface. (November 23, 1949.)

Illustrative Case

A child aged 4, whose clothing caught fire on October 28, 1949, was taken to a local hospital, where the burns were dressed with sulphathiazole cream. She was transferred to the Plastic Surgery Unit, Stoke Mandeville Hospital, Aylesbury, on November 23, with extensive full-thickness burns involving 30% of the body surface. All areas were freely discharging pus (*Bact. coli, Proteus,* and *Ps. pyocyanea*). The dressings were foul-smelling and contained a large number of maggots. She had a swinging temperature (103° F.—39.4° C.). Haemoglobin 67%. (Figs. 1 and 2.)

The child was treated in a Bunyan–Stannard bed with irrigations of 1% milton. Autogenous postage-stamp grafts to abdomen, chest, and neck, taken from left thigh and lower leg, were applied on November 28. Post-operative dressing by irrigation on December 1 showed 100% "take" of grafts. Haemoglobin 44%.

FIG. 3.—Postage-stamp grafts applied to right arm, back, and chin. (December 20.)

On December 20, postage-stamp grafts taken from left upper arm and left thigh were applied to right arm, back, and chin. Haemoglobin 75% (Fig. 3). First dressing on December 26 showed 100% "take" except in chin, where there was some loss.

Healing was complete by January 1, 1950, except for small areas on right thigh, to which further grafts were applied. Haemoglobin 86%.

In February, contracture of the neck, axilla, and right elbow scars was already marked, but the child was quite well and running about the ward (Fig. 4).

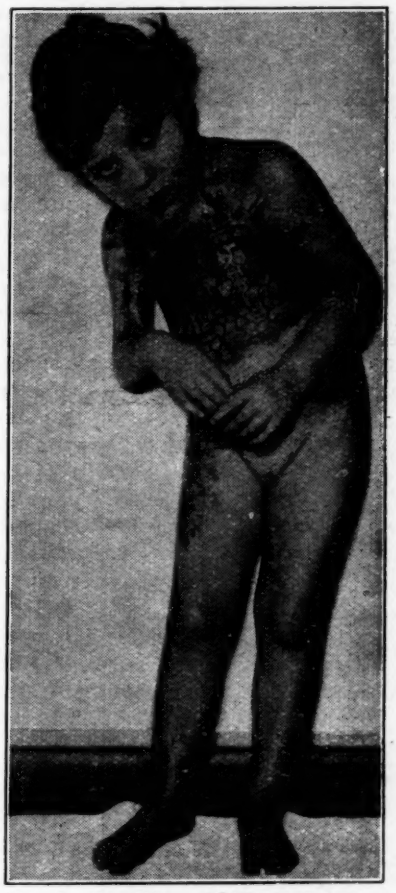

FIG. 4.—Condition of child in February, 1950.

On April 18 the scar tissue of the neck was excised, followed by the application of a large free graft from the left thigh. Haemoglobin 82%. This graft was dressed on April 24, showing a 100% "take."

Since then the child has been in a convalescent home, and will be readmitted for correction of the scar contracture of the axilla and elbow (Fig. 5).

General Measures

On admission to hospital, save in minor injuries, there will be evidence of shock in the form of pallor, thirst, restlessness, and a rapid pulse. A fall of blood pressure is, however, a late sign in burns. Local treatment should not be started until there has been a good response to the treatment of the shock. This treatment is begun immediately, and consists in allowing the patient to drink freely of sweetened drinks, and in relieving pain, administering plasma, and applying warmth.

In regard to the last, the temperature should not exceed 70° F. (21.1° C.); there is often a tendency to apply heat rather than warmth, in the form of electric blankets or lamp-bearing cradles. Below, the general measures are discussed under the following headings: the circulatory system, metabolism, and infection.

The Circulatory System

As a result of the burn many of the capillaries and small vessels in the involved area will be destroyed or their contents thrombosed. In the underlying tissue, and in a wide adjacent area, the capillaries show an increase in the permeability of their walls, so that there is an outpouring of plasma. The local effect of this is blister formation or oedema, or both; the general effect is the manifestation of true shock. Since this plasma loss can be very considerable,

FIG. 5.—Condition of child after stay in convalescent home. Correction of scar contracture of axilla and elbow still to be carried out.

there is haemo-concentration, proved and measured by a haematocrit reading.

The loss of fluid may continue for as long as 72 hours with little absorption by lymphatics, and unless steps are taken to limit this loss the effects may be disastrous. If incorrectly treated, clotting of the escaped fluid occurs, with consequent limitation of movement, stretching of surrounding healthy tissue, with anoxia, and, finally, proliferation of fibroblasts followed by scar contracture (Glenn, 1944).

It is thus one of the most important problems in the early treatment of burns to find and use methods to control this abnormal loss from the capillaries. The measures at our disposal are: firm dressings, elevation (that is, the use of atmospheric pressure), immobilization, and intravenous administration of plasma or other fluid. The first three have already been discussed.

Plasma Loss

As plasma has been and is being lost the rational remedy is to give plasma by the intravenous route. It is safer to have some method of calculating how much plasma to give: no good can follow rapid infusions in large quantities. A rough guide is that suggested by Harkins *et al.* (1942), giving 50 ml. for every 1% surface area involved. A more reliable method is the haematocrit. The first two pints (1.14 litres) can be given rapidly, but thereafter the rate should be 40 drops a minute. After the initial haematocrit reading (on admission of the patient) the amount to be given will be governed by further readings taken every few hours. The desired level is 45, but even when this is reached infusion should be continued for 12 to 24 hours, since the loss from the capillaries continues.

Anaemia

With a full-thickness skin burn involving 8% or more of the body surface anaemia will occur. The exact cause is unknown, but there is a depression of bone-marrow activity, and it is thought that infection and protein deficiency play a large part, certainly after the first week. If allowed to develop or remain untreated the consequences are (Moore *et al.*, 1946): a lowered resistance to infection (thus creating a vicious circle); anorexia; hypoproteinaemia; delay of application of skin grafts due to unhealthy granulation tissue; and reduction in the amount of take of skin grafts.

In view of these serious consequences it is clear that blood must be given early—even from the beginning of treatment in severe cases—and repeated at intervals to maintain a high level of haemoglobin (80% or more). This demands estimations of the haemoglobin every two or three days, and in calculating dosage it is to be remembered that one pint (570 ml.) of blood will raise the level by 7%. One pint of packed red cells, which takes about six hours to run in, will raise the level by 12% (Le Hane, 1950—personal communication). Transfusions may be required as often as twice a week in extensive burns.

Metabolism

A great deal of work has been carried out on the changes in the chemistry of the blood and urine in cases of burns. These are complex and their aetiology not yet fully understood, but the outstanding feature is the disturbance of the metabolism of protein. In severe burns there is an increase over the normal requirement of proteins, because of the demand for tissue repair and the production of red blood cells. From the onset, however, there is a loss of protein due to plasma loss (exudation and oedema), followed by that due to toxaemia, discharge of pus, loss of appetite, haemorrhage (for example, graft-cutting or secondary haemorrhage), and a negative nitrogen balance. The plasma protein level (6.5–8.5 g. per 100 ml., with albumin/globulin ratio 1.7 : 1) may not fall at once while the patient's reserves (muscles) of protein are being used. There will, however, be the clinical signs of wasting and exudation from the burnt surface. Protein will be lost by exudation until skin grafts have taken and coalesced.

The consequences of hypoproteinaemia are an increased nitrogen loss in the urine, general malnutrition, oedema, and delay of healing. As protein is essential for repair and energy, its loss must be anticipated. It is easy to order a high-protein diet (for example, milk, especially skimmed, meat, liver, eggs, brewers' yeast), but unfortunately anorexia is a complication of burns.

Plasma is a poor, and blood a good, source of protein, but they are insufficient. The continued efforts of a good ward sister are required, but these may need to be supplemented by amino-acids given by means of a Ryle's tube. The fluid (for example, " casydrol ") should be run in slowly and shut off at intervals, in order to diminish the nausea which is apt to follow. While such diet is essential if healing is to occur, and indeed if life is to be saved, it must not consist solely of protein; carbohydrate and sodium chloride are to be included (for example, glucose-saline drinks or infusions), together with a small amount of vitamin C (fresh fruit, vegetables).

There is therefore a need to keep an accurate intake and output chart, so that the surgeon and ward sister are alert to the day-to-day requirements. If the patient is making progress there will be a good output of urine of low specific gravity; on the other hand, oliguria with a raised specific gravity is a bad sign. The fluid loss is not entirely by the kidneys; there may be very considerable loss due to exudation and sweating. But the kidneys play the major part in eliminating the unwanted products of tissue breakdown, and the fluid intake must be sufficient to ensure a satisfactory output (for example, aged 6 months, 350 ml.; 2 years, 500 ml.; 10 years, 1,000 ml.; adults, 1,500 ml. a day).

Infection

A chart to record the results of all smears, suggested by Professor Kilner, saves endless trouble in looking through sheafs of reports. It also presents at a glance a picture of progress made and of the introduction of added infection.

Although the area burned is rendered sterile at the time of injury, it is only a matter of hours before bacterial contamination occurs. The aim of the initial cleansing is to render the burned area and the skin around for a considerable distance as bacteriologically clean as possible. The next aim is to maintain this cleanliness, which is achieved either by the use of occlusive dressings (envelope method) or by infrequent changes of dressings (Allen and Koch, 1942; Colebrook *et al.*, 1947) carried out under strict aseptic conditions. Under such treatment infection should not occur in the partial-skin-thickness burn. The only certain method of avoiding infection of the full-skin-thickness burn is immediate excision and grafting. When this is impracticable, bacterial contamination is to be expected when the slough is separating, and until grafts have coalesced. Provided the haemolytic streptococcus is not present and the number of other bacteria (staphylococci, diphtheroids, Gram-negative bacilli) is small, no serious consequence will ensue. Nevertheless, every effort must be made to keep this contamination to a minimum, and, if the haemolytic streptococcus appears, the explanation of how it got there must be sought at once.

Sources of Infection.—The possible origins of the initial bacterial contamination are: the application of unsterile coverings as first-aid measures—for example, rugs, blankets, etc.; the patient's own clothing before it is removed; and the nose, throat, and hands of those who inspect or dress the burn. The sources of origin of added infection (Colebrook *et al.*, 1947) are: the patient's nose, throat, skin, or alimentary tract (that is, in perineal or buttock burns); air-borne infection in the ward as a result of bed-making, changing dressings, or dusting of floors; interference with dressings by the patient, particularly children; from flies; from non-sterilized blankets, woollen jackets, and dolls; inefficient protective dressings; and faulty dressing technique.

Effects of Infection.—If infection is not kept under control sloughs are slow in separating, and pale, exuberant, dirty-looking (yellowish) granulation tissue will appear. Fever with an irregular temperature, anorexia, and anaemia will ensue, and so cause a delay in healing. The anaemia lowers the resistance to infection, and thus a vicious circle is established, which becomes increasingly difficult to break as the general condition deteriorates. The amount of discharge increases, with an unpleasant odour. The take of grafts becomes less certain as the amount of infection increases, and especially so if haemolytic streptococci are present.

Prevention of Infection.—Infection and added infection are prevented or kept to a minimum by intelligent first-aid methods, the administration of systemic penicillin from the moment of admission, scrupulous care at the initial cleansing, and the provision of a dressing (or envelope) extending well beyond the burned area, so applied that it cannot move (for example, slipping down a limb).

Thereafter the prevention of infection depends upon the maintenance of perfect cover; the acceptance of the principle that dressings shall not be carried out in the general ward; day-to-day inspection of dressings for any evidence of seepage of discharge; preventing interference with dressings by the fingers of young patients, by splinting of limbs; infrequent changes of dressing; taking smears for bacteriological examination at every change of dressing together with penicillin- and streptomycin-sensitivity tests; preventing anaemia and keeping the patient in a good general condition; and, above all, the early removal of sloughs and early application of skin grafts.

Treatment of Infection

It is to be emphasized that an anaemic patient will make but a poor and temporary response to any form of chemotherapy. Penicillin should be used systemically from the time of admission of the patient (100,000 units eight-hourly) or "distaquaine" (300,000 units once daily). Whether penicillin is continued or a change is made to streptomycin (8 g. in a three-day course) will depend upon the results of the bacteriological examinations and sensitivity tests. Penicillin powder or penicillin-sulphathiazole powder (5,000 units of penicillin in sulphathiazole powder) can be used locally as a spray, but these are inactivated if "milton" disinfectant is being employed.

The difficulty in treating infected burned surfaces lies in the fact that the Gram-negative bacilli (*Pseudomonas pyocyanea, Proteus, and Bact. coli*) tend to predominate. The search for an efficient antibiotic for these organisms continues, and in the meantime no drug used singly or in combination can be relied upon with any certainty. The success of any drug or the decision to change to another is decided by the improved local condition checked by the results of the bacteriological examinations.

We find milton disinfectant of great value in the treatment of these mixed infections of burns together with systemic penicillin or short courses of streptomycin. With some of the smaller heavily infected granulating surfaces we sometimes use streptomycin compresses (1 g. dissolved in 50 ml. of normal saline) over tulle gras, with firm bandaging for two or three days immediately before applying skin grafts. The compresses are renewed three or four times a day.

The best treatment of all is the application of skin grafts, but this demands the presence of flat, red, firm, healthy granulation tissue (or a recently excised area)—a state of affairs possible only with assiduous local and general treatment as outlined above. Dramatic improvement may follow the use of plasma, even more so the use of blood, but relapse soon occurs after either. The successful application of skin grafts is the only means by which improvement can be maintained; the drain on the patient's protein reserves ceases; the appetite improves and is maintained: there is an increase in weight; and the mental outlook becomes bright and cheerful, more especially as function returns. To achieve this end quickly demands recognition that all concerned shall regard the treatment of burns as a major concern calling for team-work with sustained vigilance. Everything that is done for the patient must have a reasoned explanation.

Too often the initial treatment of a severe burn is excellent, but is followed by a period of inactivity during which the patient is literally dependent upon his own resources, and during which he steadily goes downhill.

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BURNS—II. SKIN COVER FOR FULL-THICKNESS SKIN LOSS*

BY

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For the purpose of this paper it is considered that the burned area of the patient is ready for the application of skin. The patient has been treated as described in the paper by Mr. R. P. Osborne (page 1025) and the granulating areas have been rendered healthy, flat, and free from sloughs as near three weeks as possible from the date of injury. It is not necessary, in my opinion, that the granulations should be sterile, but it is necessary for success that the bacteria should be reduced from +++ content to + by the use of appropriate chemotherapy. The preparation of granulations for grafting argues the need for frequent smears to check the bacterial content and to indicate the appropriate chemotherapy. It is surprising how often one meets cases of burns treated indiscriminately with penicillin, etc., without even one smear being taken.

Object of Early Skin-grafting.—Early skin cover, even if at first only partial, reduces toxaemia and improves the general condition of the patient. Successful early skin cover gives early healing, reduces the formation of fibrous tissue, and permits restoration of function. In short, the earlier the healing the better is the chance of the return of normal function.

Autogenous Skin-grafting

Except in those cases of burns of 40% or more of the body surface, it is usually possible and best to use the patient's own skin. There is no place to-day for pinch grafts in the treatment of burns: the donor area is pitted and spoiled for future use. The Thiersch graft is more satisfactory in every way.

Under general anaesthesia the donor site—for example, the thigh or arm—is cleansed with a solution of "cetavlon" 1% and then with ether-meth, and draped with towels. Sheets of thin split-skin are cut, using a skin-grafting knife or a dermatome. My own preference is for a Humby knife, or a Marks-Blair knife with a roller attachment. When sufficient graft is cut, the sheet of skin is spread, raw surface upwards, on tulle gras. This sheet is cut into strips ½ in. (1.25 cm.) or less in width, and these strips, placed parallel to and close to each other on tulle gras, are again cut at right angles, so as to obtain small squares of graft ½ in. or less across, arranged in chessboard pattern.

Skin graft applied as a sheet to a granulating wound is likely to fail because of the presence of exudate from the wound surface which creeps under the graft and lifts the whole sheet. The same sheet of skin graft applied as small squares is more successful in that exudate can escape between the squares and is absorbed into the dressing (Fig. 1). Furthermore, applied in squares, a given sheet of skin will cover a wound area larger than the original intact sheet. It is therefore more economical as well as more sure. As the epithelization occurs from the margins of the squares, the smaller the squares the greater the available length of margin. Although a "patchwork" appearance may result from the application of skin in this fashion it must be stressed that the appearance is of secondary importance to the early healing and return of function.

FIG. 1.—Recent burns; face and eyelids. (*a*) Central tarsorrhaphy to right eyelids. Postage-stamp grafts to granulations. Slough still present on forehead. (*b*) Postage-stamp grafts coalesced. Thiersch graft to both right eyelids. (*c*) Months later: postage-stamp grafts replaced by sheet of Thiersch graft, to improve appearance. (*d*) End result. Hairy Wolfe graft to replace right eyebrow. Right eyelids separated.

The burned area is now exposed and a smear taken for bacteriological check. The granulations may be gently cleansed with "cetavlon" and then with saline, and finally compressed with dry gauze. There is no need to shave down the granulations, though this is advocated by some. The sheet of graft is applied to the granulations and held in place by strips of 3-in. or 6-in. (7.5-cm. or 15-cm.) cotton bandage stuck on to the normal skin adjacent to the burn area by "mastisol." Pressure is then applied, using gauze packs wrung out in normal saline and "elastoplast" or a many-tailed bandage.

Dressings are removed on the fourth, sixth, and eighth days after grafting only as far as the stuck-down cotton bandage, which is left undisturbed, so that the underlying grafts are not moved. Removal of dressings must be done very carefully, otherwise the grafts will come off as well. Smears can be taken of any exudate which escapes between the graft squares through the bandage on to the dressing. On the tenth day the grafts are exposed by the removal of the cotton bandage and tulle gras. The take of grafts is noted and the grafts are then re-covered with tulle gras and a saline gauze pack. Dressings thereafter are infrequent—every three to four days until the grafts coalesce, about 14 to 18 days after application.

*Read in opening a discussion in the Section of Surgery at the Annual Meeting of the British Medical Association, Liverpool, 1950.

After this, return of function is encouraged by exercises, but it is not advisable to apply grease massage to the grafts until they are more consolidated—for example, three to four weeks after grafting.

Homogenous Skin-grafting

Contrary to reports, I do not believe that a successful take of skin from one person to another is possible. Medawar has shown in his experiments that such a take does not occur and that homogenous grafts are shed after three to six weeks. Homogenous skin is applied only in sheets, because in patches this skin promotes heavy formation of antibodies.

However, there are cases in which homogenous skin-grafting serves a purpose, albeit temporarily. Consider a child with widespread burns of 40% or more body surface. The trunk, thighs, and legs may be involved so that there is little or no unburned skin to provide grafts. Such a child will be gravely ill with toxaemia, anaemia, and fluid loss even when the sloughs have been removed or encouraged to separate. Provided the child survived, spontaneous healing would occur over many months, producing thin unstable epithelium over broad areas, with dense thick scarring in the flexures, which in turn would produce contractures, deformities, and loss of function. The early application of skin in sheets from another person would provide the "best dressing" for the burn areas, after separation of sloughs. It would reduce the toxaemia and tide the child over a critical period of three to six weeks. During this time some of the less badly burned areas would have time to heal and thus provide the patient with his own skin for grafting, if only a little at a time, until full skin cover was attained. Such temporary homogenous skin cover would qualify as a life-saving measure.

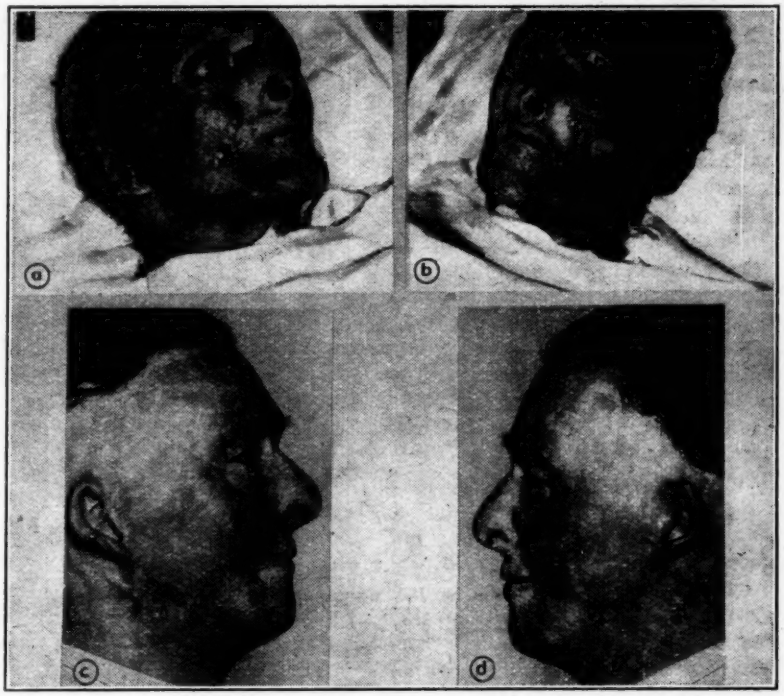

FIG. 2.—Recent burns; face. (*a, b*) Appearance in toxaemia. Ectropion of all eyelids; loss of nose-tip and parts of ears; loss of skin of forehead and cheek; (*c, d*) End result. Treatment prolonged, with intervals out of hospital. Postage-stamp grafts to forehead and cheeks still remain. Thiersch grafts to eyelids and lips. Hairy Wolfe grafts to eyebrows. Left upper arm flap to nose. Small tubed flaps from neck to margins of pinnae.

Splinting.—Areas that have been skin-grafted should be immobilized. Plaster-of-Paris gutters are most satisfactory to immobilize joints above and below the lesion.

Donor Sites.—Where possible, thighs and upper arms are chosen first. It must be stressed that as much skin as is necessary and possible should be taken from one limb before going on to another. For example, use one thigh to its utmost and keep the other thigh untouched in reserve to provide definitive skin cover. A donor site once used to provide Thiersch grafts can be used again four to six weeks later.

Application of Skin Grafts

Priority Areas.—Full-thickness skin loss of trunk and parts of limbs between joints is straightforward in that skin cover is the only issue. However, in those cases of widespread burns involving face and hands, in addition to other areas, there is a need to consider covering certain areas before others, particularly if there is likely to be shortage of available skin (Fig. 2). For example, ectropion of the eyelids should be dealt with first, in order to allow the lids normally to cover the cornea. Finger-joints and limb flexures come next in importance, and, finally, broad areas, such as trunk, thighs, forehead, cheeks, and lips. The burned hand at all times must be placed in the position of function (grasping a tennis-ball)—the best position for ankylosis, should ankylosis occur. This position is maintained by splinting while skin grafts are being applied and until they have taken.

Full-thickness Skin Grafts and Skin Flaps.—There is no indication, in my opinion, for the use of Wolfe grafts or skin flaps in the primary skin cover of burns. A Wolfe graft is a free graft of whole skin thickness. This leaves a defect which usually requires a Thiersch graft to cover it. Furthermore, a Wolfe graft is a more difficult graft to handle successfully than a Thiersch graft even under ideal conditions, and from a practical viewpoint it is not good surgery to put a Wolfe graft on to a granulating area in a burned patient and to hope for success. The use of skin flaps is best left to a later date, when healing and restoration of function have been obtained by using Thiersch grafts as described earlier.

Causes of Failure of Skin Cover in Burns.—(1) The application of a sheet of skin graft to a granulating area has less chance of success than covering with "postage stamps." (2) Placing grafts on unhealthy or too heavily infected granulations will lead to loss of some or all the grafts. The β-haemolytic streptococcus and *Pseudomonas pyocyanea* are potent sources of failure when present in heavy concentration. Adequate pre-operative pressure dressings on the granulations, with antiseptics or the appropriate chemotherapy, are necessary to obtain flat healthy granulations. (3) Imperfect pressure dressings to the grafts and incomplete fixation of the dressing will allow movement of the dressing on the graft and the collection of exudate under and around the grafts, with failure. Absent and poor splinting to the grafted limb may produce the same unsatisfactory results. (4) Rough removal of dressings on the fourth, sixth, and eighth days—that is, by tearing off grafts which had in fact taken. (5) Poor general condition of the burned patient will lead to partial or total failure of grafts. Mr. R. P. Osborne in his paper has indicated general and local preparation of the burned patient.

Methods of Cutting Skin Grafts.—There are various knives in use. To obtain small grafts the ordinary cut-throat razor may serve. On the other hand, those in frequent practice prefer the Blair knife, the Humby and Marks–Blair knives, which have an adjustable roller along the edge of the blade, or the dermatome. The various knives are most suitable on plane surfaces—for example, the sides of the thighs—but on the abdomen or back suction boxes are usually required, to produce a plane surface. The dermatome can be used on any surface, as the sticky drum picks up the skin and presents it to the knife edge. Knives and drums have their separate followers.

Refrigeration of Grafts.—Sheets of skin wrapped in tulle gras and placed in sealed sterile bottles in an ordinary refrigerator can be preserved for several weeks and then successfully used. This has been described by Jerome Webster (1944) and by D. N. Matthews (1945). The procedure is particularly effective in the treatment of moderately burned children, in that when the first cleansing of the burned area is undertaken under anaesthesia the grafts can be cut and refrigerated, to be used during the succeeding two to three weeks as the granulating areas permit, without the necessity of further anaesthetics. Combined with envelope therapy, the number of anaesthetics for a particular case can be reduced to two or even one.

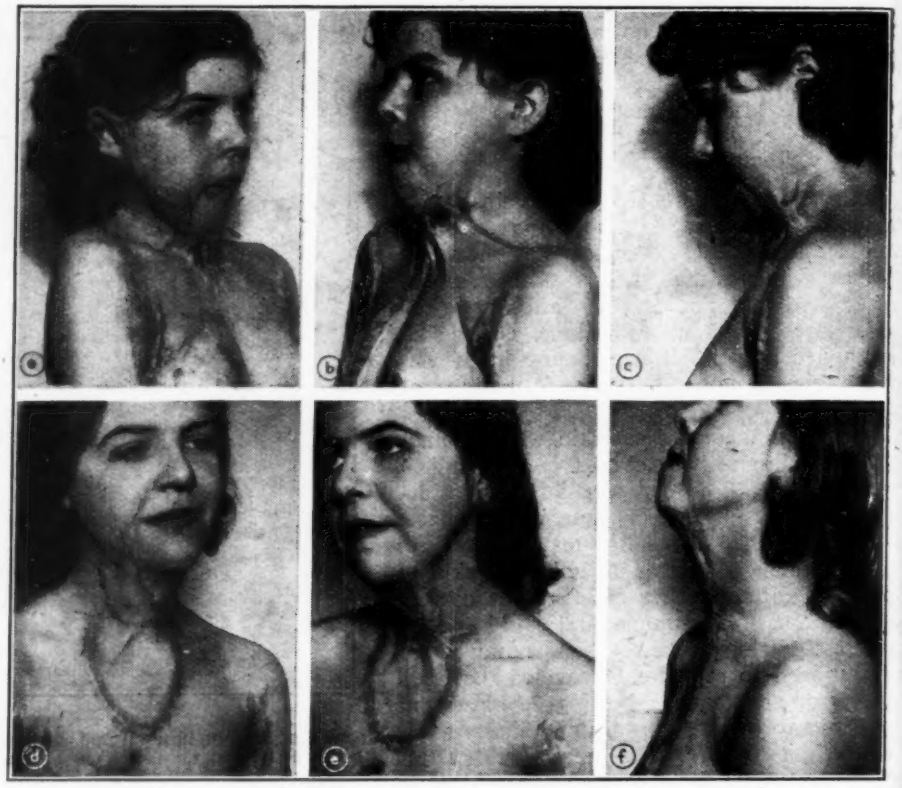

FIG. 3.—Old burns; face, neck, chest, axillae; keloid scarring. (*a, b, c*) On admission, scar contracture of neck and axillae; dense keloid. *X*-ray therapy. (*d, e, f*) After transfer of abdominal tubed flaps to neck in stages. Recurrence of keloid scarring.

A point is now reached in the treatment of the burned patient where, following the application of skin in squares, early healing is a fact. Consistent with the extent of the burn, the earlier the healing, the better the chance of return of function. The physiotherapist comes into the picture about three weeks from the date of grafting, with appropriate exercises to the limbs, gentle grease massage, and wax baths to the grafts.

Sequelae

Despite all this, certain sequelae may and do arise: (1) irritation in and around the grafts; (2) contractures; (3) keloid scarring.

Irritation in and Around the Grafts.—This is often relieved by antihistamine drugs internally and calamine lotion and antihistamine creams locally.

Contractures.—Particularly in the flexures, there may arise bands of scar tissue limiting joint movements. There may be some response to grease massage and to night-splinting, but marked degrees of contracture are on occasion inevitable. In these cases the only immediate consolation is that without skin-grafting it would have been much worse. Reference will be made to such cases later.

Keloid Scarring

Quite apart from burns, many people develop keloid scars where the skin has been traumatized. Frequently keloid will occur in the area between the mouth and lower neck, and also on the front of the chest, and yet not elsewhere (Fig. 3). On the other hand, some few patients show marked keloid everywhere on the body. In those cases in which keloid occurs it has followed suture of a skin wound under tension. It is a frequent complication in burned patients, and in my experience appears about one to two months after healing. The keloid scars may continue to increase for several months, and then show fading over a period of years.

Recent and rapid keloid formation is red, raised, hot and tender on pressure, and irritates to a marked degree. Old and slowly forming keloid scarring is hard and pale. Keloid scars and hypertrophic scars differ histologically only in the accumulation of scar tissue. Keloid scarring will recur after excision of a keloid scar and suture, at the margins of skin grafts and flaps, and in the donor site of a skin graft. There is no known cause for the occurrence and recurrence of keloid scars, and there is no consistent difference histologically between keloid scars, hypertrophic scars, and ordinary scar tissue. The tendency to keloid scar formation in a patient is said to diminish after the early twenties.

It is a practical point to review all cases of recently healed burns one to two months after healing, in order to check the occurrence of keloid.

Treatment of keloid scarring is sought, therefore, for pain, irritation, deformity, and disfigurement. Pain and irritation in the early keloid are treated by moderate doses of *x* rays or radium, and relief occurs over two to three months. The irradiation must be superficial and limited to the skin area involved. The dosage is that which produces a faint erythematous reaction in the skin, and this is a matter for the judgment of the skilled radiotherapist *X* rays or surface radium may be used, and where low-voltage therapy apparatus is available the technical superiority of *x* rays over radium is unquestionable.

The keloid scar becomes softer and paler and less indurated during several months after irradiation, and this regression may proceed for one to two years and so reduce any disfigurement. Where there is deformity by contracture, release of the contracture and the insertion of a skin graft is usually necessary, associated with pre-operative and post-operative irradiation.

The recent red fleshy scars respond best to irradiation. The whiter and older keloids are usually hard and fibrous, and these respond less well to radiotherapy, though it is advisable to combine radiation before and after excision. The same procedure is indicated in the surgical excision of keloid linear scars—to enlist the help of the radiotherapist. Linear scars are usually given irradiation five to ten days before operation, so that excision takes place during the actual period of *x*-ray reaction. Post-operative irradiation takes place shortly after the removal of stitches —that is, five to seven days after excision of the scar.

Late Cases of Burns and Healed Burns

Naturally, not all cases of burns reach the plastic surgeon in the early stages; nor is this desirable—otherwise he would be overwhelmed. Some cases arrive partly healed, with granulating surfaces and early contractures, and some are healed, but with scar contractures, loss of function, and disfigurements.

The unhealed cases are treated as primary cases, with investigation of the general condition, as well as provision of early skin cover. It is equally important to consider the levels of blood, plasma proteins, salts, and vitamins in these as in the early cases.

The healed cases include all those, of whatever source, in which there is loss of function and/or disfigurement by scarring. These may well be present even where adequate preliminary patch grafts have been applied, but it is expected to be less where this early treatment has been available.

The problems here are long-term and consist of: (*a*) restoration of function by scar excision and suture, scar excision and skin-grafting, and attention to tendons and joints; (*b*) improvement of appearance by irradiation of keloid scars, the use of full-thickness (Wolfe) skin grafts, and the use of skin flaps; and (*c*) physiotherapy, occupational therapy, and rehabilitation, as treatment of these cases may be spread over several months with intervals out of hospital.

Restoration of Function.—In brief, attempts are made to free affected joints by removal of scars, with or without the insertion of skin, and by the employment of the Z-plasty procedure. Attention to tendons and joints may require sheet skin or flaps on the backs of the hands and digits, and stripping up of extensor tendons to allow freedom of movement. Capsular thickenings, particularly around the metacarpophalangeal joints, can be relieved by capsulotomy. The position of ankylosed interphalangeal joints may be improved by arthrodesis, and, in fact, arthrodesis may be indicated where work on tendons is not justified by the expected result. Amputation of the fifth finger in a badly burn-scarred hand is often necessary.

Improvement of Appearance.—*X*-ray irradiation of keloid scarring of the chin and cheeks may improve the appearance sufficiently to do without surgical treatment. The use of full-thickness skin (Wolfe) is reserved for the purpose of obtaining good cosmetic results—for example, the provision of hairy grafts for eyebrows, and to provide skin for eyelids, nose, and cheeks of good colour and texture. Skin flaps are used in burn cases to provide skin and subcutaneous tissue where these have been lost—for example, on the face and neck, and on hands. The area to be covered should be known when the flap is raised, and for this reason the skin flap is used for final cosmetic results, after function has been restored so far as is possible, and not to release a scar contracture where the extent of gape of the incised wound cannot be predetermined.

Physiotherapy.—At all operative stages the surgical treatment is backed up by the physiotherapy department, members of which do so much to restore the usefulness of limbs and joint muscles, and to improve the blood supply of grafts and flaps. Further assistance is gained from occupational therapy between operations, to relieve boredom, as well as to improve function. This includes weaving, knitting, leather work, carpentry, and machining, though these are particularly applicable to hand injuries. Extremely useful progress has been made by certain firms in the motor industry who have modified their machine tools to assist the worker with joint and tendon injuries.

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In the annual report (1949) of the Colonial Office on the East Africa High Commission (H.M.S.O., London) reference is made to the establishment in Nairobi of the East African Bureau of Research in Medicine and Hygiene. The Filariasis Research Unit, with headquarters in Mwanza, Tanganyika Territory, was also set up in 1949. The objects of the unit are to ascertain how serious a problem filariasis is to the economy and welfare of East Africa, and to investigate methods of control and treatment of filarial diseases, either by the use of drugs or by the control of insect carriers, or both. Pilot surveys were carried out in Tanganyika, and the results showed that bancroftial filariasis was worst near large masses of water —salt and fresh—and confirmed the remarkable patchiness of distribution of the disease even in areas showing a high overall incidence. Hetrazan has been found very effective in abolishing larval forms of filariasis from the body surface. Different courses of treatment have been tried out, and the individuals concerned will be followed up to ascertain the relative merits of the different dosage schemes. The East African Medical Survey is continuing its work in spite of staffing difficulties. The aim of the survey is to obtain a picture of the state of health of the African and information about how best to control the more important of the common diseases of East Africa. An innovation which will prove of value is the introduction in the Malya area of registration of births and deaths. In Kenya research is continuing on relapsing fever.

FIXATION OF A CORNEAL GRAFT BY AN ACRYLIC SPLINT

BY

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The fixation of a corneal graft is a matter of considerable importance both for its immediate fate and for its ultimate clarity; for any gross displacement of the graft may lead to its complete loss, together with the hazard of a lost eye, and small degrees of tilting are followed by opacification of the graft to some extent.

Some surgeons (Tudor Thomas and Castroviejo) favour the cutting of an oblique shelf in the deeper layers of the cornea to prevent the graft from slipping into the eye. The disadvantage of this procedure is that surgical manœuvres are increased compared with the clean cutting of the graft with a trephine alone, and in using instruments to effect the shelf some extra trauma is inflicted on the deeper layers of the cornea. Even with the utmost manual skill and perfect instruments the evenness with which such a shelf may be fashioned lacks microscopical precision.

In cases in which no attempt is made to cut a shelf, a graft cleanly cut by the trephine, 0.1 mm. less in diameter than that of the recipient's corneal bed, will, when perfectly fitted and maintained thus, remain in position and not slip into the anterior chamber.

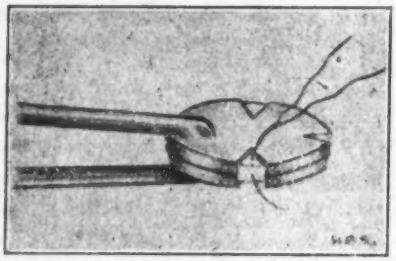

FIG. 1.—Arruga's box for holding full-thickness corneal transplant during the insertion of sutures.

It is generally agreed that some means of preventing the graft from being projected forwards and dislodged from its bed is desirable. This is effected by means of sutures placed either directly through the edges of the graft and its bed or indirectly in the adjacent cornea and made to traverse the graft as a mesh of sutures, preferably crossing it at eight sites equidistant from each other. There are many designs for the placing of such sutures. Mattress sutures passed through the conjunctiva and episcleral tissues at the limbus are often doomed to failure, for the long traverse across the cornea favours their displacement and they may endanger the graft by slipping between its edge and its bed. However, this is obviated by C. W. Graham's technique of lashing together the vertical and the horizontal mattress sutures at their four sites of crossing by four loops of silk tied anterior to each crossing.

Direct suturing of the edge of the graft is technically difficult and is apt to injure the graft, but is necessary in cases of aphakia and when it is feared the vitreous may herniate forward into the graft bed. To perform direct suturing special instruments are needed. Fig. 1 shows the corneal graft retained in Arruga's box, notched at four sites on its circular edge to give access to the passage of Grieshaber's corneal needles threaded with 000 black silk. It is of course important to mark the cornea with precision at the site for insertion of the sutures, for any irregularity will cause kinking of the graft and so imperfect coaptation of its edge.

Indirect suturing by the passage of mattress or some other design of stitch through half the thickness of the cornea about half-way between the edge of the graft bed and the limbus is generally effective in maintaining a graft in position. It is difficult to be sure that the right degree of tension is present in each suture and that this is evenly disposed among the eight sites where sutures cross the graft edge. Inequalities of pressure from these sutures may lead to slight lifting of the graft edge at places between the meshes of the suture network.

To effect evenly distributed pressure on the graft edge in one plane I have been trying a modification of Pittar's ring. Pittar's ring is made of tantalum, and so has the disadvantage that it is impossible to see the position of the edge of the graft at the end of operation and at subsequent dressings. It has a central aperture 3.5–4 mm. in diameter, and in some cases the graft is apt to bulge forward into this aperture.

The modification made for me by Theodore Hamblin consists of an acrylic splint (Fig. 2) shaped to conform with the curvature of the anterior surface of the cornea. The splint is a disk 1.5 mm. thick, 7.5 mm. in diameter, and from its edge there extend four flanges (see Fig. 2, a) at equidistant intervals. The end of each flange reaches to within 1 mm. of the limbus, and 1.5 mm. from the end of the flanges there is a notch on each side for the retention of a silk suture used for anchoring the flange to the cornea.

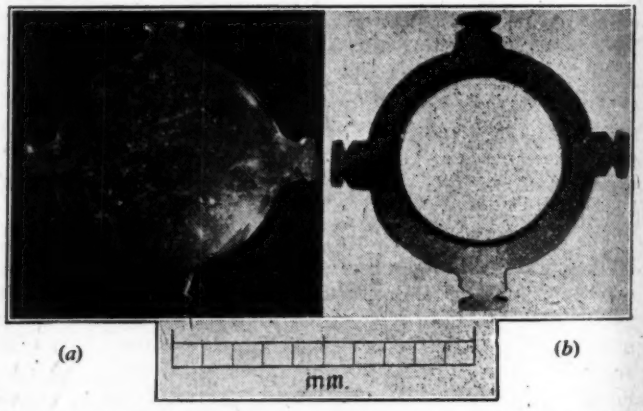

FIG. 2.—(*a*) Acrylic splint with flanges. (*b*) Pittar's tantalum marking-ring.

I have tried splints with a hole in the centre, 1 mm. and 2 mm. in diameter, in the belief that this would act like a perforated contact lens and allow some oxygenation of the graft. In two cases the hole filled with mucus and exudate, and temporarily a superficial central opacity occurred in the graft immediately beneath the site of the hole and corresponding with it in size. This opacity cleared within nine days of the removal of the splint. The disk splint also helps to mould the anterior surface of the graft. This was particularly evident in a case of interstitial keratitis where corneal grafts in both eyes were retained by this splint. The visual result in the right eye is 6/5 with a small minus cylinder, and in the left eye is 6/9, with no apparent refractive error and unimproved by a lens.

Operative Technique

Pittar's tantalum marking-ring with an aperture 5.1 mm. in diameter (Fig. 2, b) is placed on the cornea so that the disk of opaque cornea to be removed is included within the aperture of the ring and lies over the pupil. With the ring in place a 5.1-mm. trephine is fitted into the aperture

and with several turns of the trephine the corneal epithelium is cut. The trephine and marking-ring are now removed and the trephine cut is stained with fluorescein.

The acrylic splint is now placed on the cornea so that it overlaps the trephine incision, which is seen through the transparent acrylic as a green ring. The flanges are placed in the 12 to 6 o'clock meridian and the 9 to 3 o'clock meridian. The cornea is dried with the tip of a sterile filter paper at the sites of the notches in the flanges, and these sites are marked on the cornea with a dot of gentian violet.

The acrylic splint is now removed. No. 000 black silk sutures threaded at each end with Grieshaber's needles are passed through half the thickness of the cornea at the site of the dots; in the case of the 12 and 6 o'clock flanges the sutures pass transversely and in the 9 and 3 o'clock positions they pass vertically (Fig. 3). The arms of these

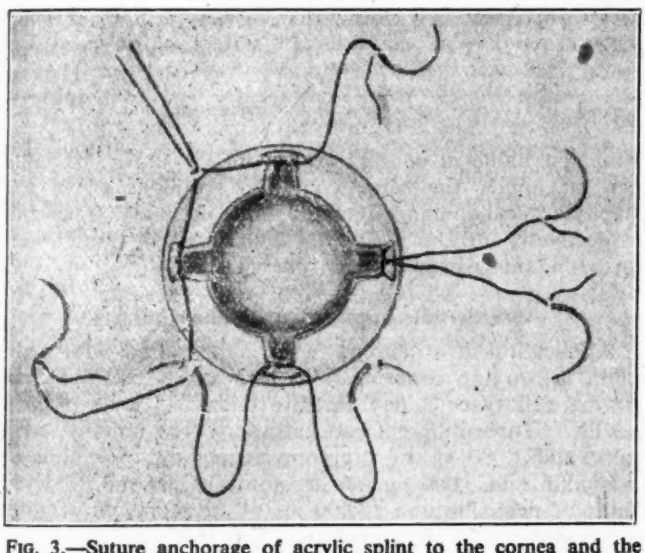

FIG. 3.—Suture anchorage of acrylic splint to the cornea and the conjunctiva at the limbus.

sutures are then secured to the head towel with bulldog clips in their proper order.

The disk of opaque cornea is now cut with a 5.1-mm. trephine and removed. Any tags of Descemet's membrane are trimmed. The corneal graft is set into its bed and the acrylic splint is placed over this. The edges of the graft are clearly seen through the transparent acrylic, and any necessary adjustment may be made with the tip of an iris repositor. The notches of the flanges are placed in line with the sutures, which are now brought forward in the notches and tied with a surgical knot, the needles being retained on the ends of the sutures.

To make the anchorage of the acrylic splint even more secure each arm of the suture is brought out through the conjunctiva at the limbus at a site about equidistant from each flange (Fig. 3). For instance, in the right eye the temporal arm of the 12 o'clock flange suture is carried through the conjunctiva at 10.30 o'clock and so is the upper arm of the 9 o'clock flange suture. These sutures are then tied and their ends left long. A like procedure is done with the nasal arm of the 12 o'clock flange suture and the upper arm of the 3 o'clock flange suture, which traverse the limbal conjunctiva at 1.30 o'clock, and so with the other sutures to effect additional anchorage at 7.30 and 4.30 o'clock in the limbal conjunctiva. The ends of these sutures are left long and the pairs of these are then brought obliquely across the acrylic splint from 7.30 to 1.30 and 4.30 to 10.30 o'clock. This cross of double sutures is the third means of anchoring the acrylic splint.

Post-operative Technique.—Between the eighth and tenth days after operation one or two of the limbal sutures cut out, but the corneal sutures hold firm. The acrylic splint is removed on the tenth day. In seven cases thus treated to date, the graft has been clear, its edge showed perfect coaptation to the bed in the recipient's cornea, and its surface was evenly moulded by the splint to conform with the curvature of the cornea. There has been some conjunctival irritation, particularly at the limbus.

Summary

A method of fixing a corneal graft by means of an acrylic disk splint with four flanges anchored to the cornea with sutures is described.

Acknowledgment for the use of Fig. 1 is made to Messrs. John Wright, of Bristol, who published it in the second edition of *Eye Surgery*, and for Fig. 2 to the Editor of the *British Journal of Ophthalmology*.

EFFECTS OF PENICILLIN AND STREPTOMYCIN ON VACCINE LYMPH

BY

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With the best of care, heavy bacterial contamination of vaccine lymph (calf lymph) is inevitable during its preparation, and as many as 500 million organisms per ml. may be present, particularly in the Tropics. They belong mostly to the cocci group, but may include also *Bacillus subtilis, Bact. coli, Pseudomonas pyocyanea*, yeasts, and fungi; anaerobic organisms may also be occasional contaminants. None of the methods so far advocated to reduce the number of bacteria can be considered satisfactory. The use of eggs and tissue-culture to prepare the sterile vaccine aseptically has not met with universal approval, because of the uncertain immunizing power of the product: calf lymph still holds the field. Many institutes in India employ what is known as the "chloroform process," in which chloroform vapour is bubbled through the vaccine lymph for a known time to sterilize it. But, since chloroform has no action on spores, the spore-bearers present in the lymph persist. Other countries use different methods. But so far no method has been found consistently to give absolute bacterial sterility.

The antibiotics, by virtue of their action on bacteria, should be of great value in the purification of vaccine lymph; and I have made a detailed study of their use under different conditions.

Effect of Penicillin on Glycerinated Vaccine Lymph

This has already been investigated by various workers (Diaz Romero, 1945; Morin and Turcotte, 1946; Patel, 1948) with very encouraging results, but in my experience it is disappointing (Krishnamurthy, 1949). This is probably because previous work seems to have ignored the possibility of interference with the sterility tests by the residual penicillin in the stored lymphs. In the present experiments residual penicillin from the treated lymph was removed by alternate washing with distilled water and centrifuging four times, and the sediment was tested for sterility. The plate showed numerous colonies of staphylococci and a few

B. subtilis groups of organisms, while the unwashed lymph (still containing penicillin) naturally gave no growth whatever (Table I).

TABLE I.—*Effect of Penicillin*

No.	Penicillin (Units per ml.)	Duration of Contact with Penicillin	Colony Count on Lymph Samples	
			Before Removal of Penicillin	After Removal of Penicillin
1	500	1 week	No growth	230 millions per ml.
2	5,000	1 "	" "	238 " " "
Control	Nil (untreated lymph)		240 millions per ml.	

0·1 ml. of undiluted lymph was used for testing unwashed penicillin-treated lymphs and 1 ml. of one in a million dilution was used for penicillin-removed and untreated control lymphs.

It is clear that the organisms are not killed but merely inhibited by penicillin, and once the penicillin is removed or inactivated the inhibited organisms show up.

Effect of Streptomycin on Glycerinated Vaccine Lymph

In one of the experiments streptomycin was added in concentrations varying from 500 μg. to 10,000 μg. per ml. of glycerin vaccine lymph and preserved in cold storage. Sterility tests after varying periods gave encouraging results. It was observed that there was a fall in the bacterial population proportional to the concentration of streptomycin and the duration of its contact (Table II).

TABLE II.—*Effect of Streptomycin*

Sl. No. of Lymph	Conc. of Streptomycin (μg. per ml.)	Staphylococcal Colony Count per ml. After	
		24 Hours	1 Week
1	500	10,200	7,900
2	1,000	1,400	1,100
3	2,000	300	100
4	5,000	240	40
5	*Nil*	252 millions	240 millions

No appreciable difference was noted between tests done before and after removal of residual streptomycin by alternate washing with distilled water and centrifuging six times, except that there was some growth of *B. subtilis* afterwards, showing that the spores were only inhibited and not killed by the antibiotic.

In combination with 500 units of penicillin per ml. as little as 500 μg. of streptomycin per ml. reduced the bacterial contamination to a greater extent (Table III).

TABLE III.—*Effect of Combined Action of Streptomycin and Penicillin*

Sl. No.	Conc. of Penicillin (Units per ml.)	Conc. of Streptomycin (μg. per ml.)	Colony Count per ml. After	
			24 Hours	1 Week
1	500	500	150	60
2	1,000	1,000	130	60
3	2,000	2,000	140	30
4	*Nil*	*Nil*	252 millions	240 millions

Tests were done after removing the residual antibiotics to eliminate penicillin interference. *B. subtilis* spores were found to be unaffected by this method also.

A study of the effects of these antibiotics under conditions optimal for their action, permitting a growth phase of the bacterial flora of the vaccine, was next taken up.

Effects of Antibiotics on Vaccine Pulp at 37° C.

Vaccine material (vaccine pulp) immediately after collection from the calf was diluted with two volumes of distilled water (no glycerin was added) and well emulsified. The emulsion was then treated with streptomycin in concentrations varying from 500 μg. to 10,000 μg. per ml., both singly and in combination with penicillin, and incubated at 37° C. for 24 hours. Bacterial reduction was complete after 24 hours' incubation in 5,000 μg. of streptomycin per ml. singly or in combination with 1,000 units of penicillin. *B. subtilis* spores were also affected. It was found that moulds which persisted in lower concentrations were suppressed in 10,000 μg. of streptomycin (Table IV).

TABLE IV.—*Effect of Streptomycin and Penicillin on Vaccine Emulsion (Without Addition of Glycerin) at 37° C. for 24 Hours*

Sl. No. of Samples	Conc. of Streptomycin (μg. per ml.)	Conc. of Penicillin (Units per ml.)	Bacterial Count per ml.
1	500	—	1,800 staph.
2	1,000	—	1,500 staph.
3	5,000	—	Moulds only
4	10,000	—	*Nil*
5	—	500	Numerous *Bact. coli* and 250 staph.
6	—	1,000	Numerous *Bact. coli* and 200 staph.
7	500	500	150 staph.
8	1,000	1,000	120 staph.
9	1,000	5,000	Moulds only
10	1,000	10,000	*Nil*
Control	—	—	1,200 millions (staph., *B. subtilis*, *Bact. coli*, and moulds)

Tests were done after removal of residual antibiotics.

Penicillin alone in concentrations of 500 and 1,000 units per ml. under the same conditions brought down the staphylococcal contaminants to 250 per ml. and 200 per ml., respectively, and the *B. subtilis* content to *nil*, but allowed an abundant growth of *Bact. coli* (Table IV).

External Application to the Calf

Application of streptomycin in combination with penicillin in varying concentrations over the vaccinated area of the calf twice a day for five days also yielded good results. Three different concentrations (100 units of penicillin and 1,000 μg. of streptomycin per ml., 500 units of penicillin and 5,000 μg. of streptomycin per ml., and 100 units of penicillin and 10,000 μg. of streptomycin per ml.) were used on different animals. The first application was about one hour after vaccinating the animal, and the last one about 18 hours before the scraping of the vesicles. The scraped material was emulsified in glycerin in the usual manner and stored in the refrigerator. It was interesting to find that external application of streptomycin reduced the bacterial contamination to a very great extent, the count being not more than 200 organisms per ml. of vaccine lymph in all the cases. *B. subtilis* spores were unaffected by this method also.

Effects on Potency of Lymph

Vaccine lymphs treated with different concentrations of the two antibiotics for varying periods were tried periodically for potency on rabbits. The highest concentration of penicillin used was 10,000 units per ml., with a contact period of about one year, and of streptomycin 10,000 μg. per ml., with a contact period of about six months. None of the samples tested showed any loss in potency.

Clinical Trial on Children.—Penicillin-treated lymphs were not tried on human beings, on account of their bacterial impurity. A preliminary trial, on children, of streptomycin-treated lymphs (both with and without further dilution) satisfying the various standardization tests indicated that the vaccination "takes" were normal and uneventful. The work is being pursued further.

Discussion

Chain and Duthie (1945), Todd (1945), and others have established that penicillin is bactericidal against susceptible

organisms only during their growth phase in a nutrient medium and not while "resting" in a non-nutrient fluid. Glycerinated vaccine lymph is a non-nutrient medium, which explains the failure of penicillin in reducing the bacterial flora.

On the other hand, Strauss (1947) and Garrod (1948) have clearly demonstrated that streptomycin is bactericidal both in nutrient and in non-nutrient fluids, though needing higher concentrations in the latter; and streptomycin has likewise proved effective in lymph. Further, it acts synergistically with penicillin, as little as 500 μg. of streptomycin with 500 units of penicillin per ml. producing an equally effective bacterial reduction of vaccine lymph. Chain and Duthie (1945), Himmelweit (1945), and Pulaski, Kleinman, and Duncan (1946) report that certain antibiotics in combination with sulphonamides, bacteriophage, or other antibiotics have such a synergistic action.

While the Therapeutic Substances Act permits up to 5,000 organisms per ml. of lymph, streptomycin-treated lymphs have barely 200 organisms per ml.—in some cases no bacteria at all. The minimal requirement for a consistently successful vaccination "take" in children in the Tropics is a 10^{-4} or 10^{-5} positive potency (as tested by continuous vaccinal vesiculation on the rabbit); the streptomycin-treated lymphs have usually a 10^{-8} positive potency, or more. This permits the use of highly diluted vaccines and effects a great saving in production cost.

Summary

The effects of penicillin and streptomycin on vaccine lymph (calf lymph) under different conditions are described.

Penicillin is ineffective in reducing the bacterial flora of vaccine lymph under those conditions; this becomes evident only when tests are conducted after removal of residual penicillin from the penicillin-treated lymphs.

Streptomycin successfully brings down the bacterial flora of the vaccine lymph to the required extent.

Neither antibiotic affects the potency of vaccine lymph.

The application of these findings to the preparation of purer calf lymph at a substantially lower cost than at present is discussed.

I am grateful to Dr. T. Chandrasekhariah, Director of Public Health in Mysore, for granting the facilities to undertake this work and for permission to publish this paper. I wish also to thank my staff for their co-operation throughout.

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The British Hospitals Contributory Schemes Association combined its second annual general meeting in London on October 13 with a conference on convalescence and aftercare opened by Sir Allen Daley, chief medical officer of London County Council. Mr. Henry Lesser was reappointed president, Mr. W. G. Nevin honorary treasurer, and Mr. John Dodd honorary secretary. Three million citizens are now raising £2m. a year to obtain benefits supplementary to the National Insurance and Health Service Acts, and the thirty schemes affiliated to the association raised charitable income for amenities for hospital patients, medical research, and medical charities of more than £40,000 in 1949.

Medical Memoranda

Cushing's Syndrome Presenting with Features of a "Type II" Nephritis

The following case is interesting enough to be placed on record.

Case Report

A 3-para aged 41 was admitted on January 3, 1949, complaining of swelling of face, abdomen, and lower limbs of two months' duration. There was some frequency of micturition and thirst.

On admission she was found to be obese, with gross, very soft pitting oedema of lower limbs and abdomen; hair growth was normal; blood pressure 190/90; fundi were normal. The urine contained a "light cloud" (40–80 mg./100 ml.) of albumin; no casts; no sugar; protein, 0.252 g. per 100 ml.; total protein in 24 hours, 3.8 g. The blood urea content was 29 mg. per 100 ml.; blood urea clearance, 68% of average normal; plasma total protein, 4.6 g.% (albumin 3.1 g., globulin 1.3 g., fibrinogen 0.2 g.); A/G ratio, 2.4:1. Serum cholesterol, 408 mg./100 ml.

The presumptive diagnosis was Type II nephritis (Ellis), and she was put on a salt-free high-protein diet. After three weeks the oedema had almost subsided. There was only a trace of albumin in her urine (0–2 mg./100 ml.), and she felt better. Her blood pressure was still 190/90. She was discharged and told to attend the out-patient department for a follow-up.

The patient was readmitted on February 16. She had been getting weaker for three weeks, suffering from intense thirst, anorexia, constipation, and mental depression, and had missed two periods.

On examination she was ill, lethargic, and dehydrated. There was a dusky cyanosis of her rather large face, which was covered with fine downy hair. The skin throughout was dry and scaly, and there was generalized pitting oedema, most noticeable in the legs. The external primary and secondary genitalia were atrophic. Blood pressure was 185/105; fundi were normal. A firm mass could be palpated in her right loin as well as a firm and possibly irregular liver edge. Cutis marmorata was noticed. A diagnosis of Cushing's syndrome was made, with a suprarenal lesion and some renal defect.

Investigations after readmission showed: blood urea, 58 mg./100 ml.; urine, 40–80 mg. of albumin per 100 ml.; very few hyaline and granular casts; haemoglobin, 73%; R.B.C., 4,270,000; C.I., 0.85; serum cholesterol, 200 mg./100 ml.; 17-ketosteroids per 24 hours, 31 mg.; blood sodium, 335 mg./100 ml.; blood potassium, 16.5 mg./100 ml.; plasma phosphorus, 1.2 mg./100 ml.; serum calcium, 8.7 mg./100 ml.; urine loaded with sugar and acetone (to 2%); blood sugar content, 407 mg./100 ml.

After stabilization of her diabetes Mr. Donald Barlow, on April 5, removed a large encapsulated suprarenal tumour. In spite of pre- and post-operative saline plasma, "eucortone," deoxycorticosterone acetate, "methedrine," etc., the patient died 14 hours after the operation.

Post-mortem findings showed a typical adrenal cortical carcinoma with secondary deposits in the liver and lungs. Macroscopically the kidneys, thyroid, and pituitary gland were normal. The left adrenal was smaller than normal. Microscopically the kidneys showed some tubular cloudy swelling, but the glomeruli gave no evidence of nephritic change. True basophil adenoma was not found in the pituitary, but there was an excess in the numbers of basophil cells present.

Comment

The interesting feature of this case is that the oedema and albuminuria were so pronounced that it was at first assumed to be an example of "Type II" nephritis.

There might have been a number of explanations for this.

1. *Renal Disease.*—Cushing (1933) and MacMahon, Close, and Haas (1934) mention hypertension, chronic nephritis, and even malignant nephrosclerosis in association with Cushing's syndrome. However, in the present case output was adequate, specific gravity between 1010 and 1020 at all times, albuminuria never severe enough (40–80 mg./100 ml.) to explain the massive oedema, and blood urea and urea clearance were within normal limits, as were plasma total and fractional proteins and the albumin/globulin ratio. One point of interest is that on her first admission the patient's serum cholesterol was 408 mg./100 ml. (a feature together with physical signs suggesting Type II nephritis), but at the time of her second admission it was only 200 mg./100 ml. At necropsy there was neither macroscopic nor microscopical evidence of renal disease.

2. *Disturbance of Salt–Water Metabolism.*—It has been found that in Addison's disease there is a lowering of serum sodium and chloride concentration and an increase in serum potassium (Loeb, 1932), leading to loss of fluids, dehydration, and collapse. It would seem reasonable to assume that in a case such as ours, in which there was an excess of actively secreting cortical substance, evidenced by raised ketosteroid excretion, there might be retention of serum sodium and loss of serum potassium, leading to increase of the crystalloid concentration of the blood, fluid retention, and oedema. In our patient, at a time when the oedema was extreme, we obtained and checked a normal blood sodium and potassium reading.

In conclusion, I must admit that the cause of the oedema in the patient remains elusive.

My thanks are due to Dr. R. Sleigh Johnson, under whose care the patient was admitted, for permission to publish this paper and for his continued interest and encouragement; also to Dr. G. E. Thomas for performing the post-mortem examination.

F. W. WOLFF, M.B., B.S.

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Recurrent Obstruction of an Obturator Hernia

The following case brings out the important features of the condition, the main factors of which are difficulty in diagnosis, difficulty in reduction, and difficulty of repair.

CASE REPORT

A married woman aged 64, who had had a bilateral femoral hernia operation many years previously, was admitted in August, 1947, with intestinal obstruction. Her symptoms of colicky abdominal pain, vomiting, constipation, and pain on the inner side of her right thigh subsided with conservative treatment. A barium meal and follow-through were normal afterwards, and she was discharged.

In May, 1948, she was readmitted with the same condition. Laparotomy through a right mid-paramedian incision was performed. Nothing was seen, but a hand put down into the right iliac fossa felt a loop of bowel tied down there. Gentle traction freed this, and, though the site of obstruction was not seen, it was thought that the bowel had been adherent to the abdominal end of the right femoral canal. The abdomen was closed, and the patient recovered uneventfully.

In May, 1949, the patient was again admitted with acute intestinal obstruction. She complained of pain down the inner side of the right thigh. Examination revealed tenderness in the region of the pectineus muscle. In view of this sign and her previous history, a diagnosis of strangulated obturator hernia was made and operation undertaken.

Operation.—A low right paramedian incision was made and the diagnosis confirmed, a loop of ileum being strangulated in the right obturator canal. Traction from within failed to reduce this. The sac was therefore exposed through the upper part of the right thigh. The pectineus and the adductor longus were retracted, and the adductor brevis split, bringing the sac into view. Opening the sac revealed a small knuckle of ileum. Reduction was effected by pressure from below and traction from above. A small area of non-viable bowel was inverted with Lembert sutures.

Repair was attempted by means of stitches inserted through the proximal end of the obturator canal via the abdominal wound. These stitches failed to obliterate the canal owing to the usual difficulty of finding tissue to close the gap without interfering with the obturator vessels and nerve.

Accordingly, the canal was plugged from below by a rolled-up piece of tantalum gauze inserted through the thigh wound. This was held in place by suturing the adductor brevis over the lower end. The thigh and abdominal wounds were then closed.

The patient's convalescence was uneventful, and the subsequent radiographs have shown that the tantalum remains *in situ*. The wounds healed by first intention. Six months after the operation no further symptoms had developed.

COMMENT

Strangulated obturator hernia is a rare condition first described in France in 1724, but an operation was first performed for it by Hilton 74 years later. Pre-operative diagnosis is seldom made, and the operative mortality is in the region of 30%. It is much commoner in women, and 50% of the cases described were in their sixties. The youngest case reported was that of a child of 12.

The sac is not palpable except in large herniae, when it may protrude superficially between the pectineus and adductor longus. Pain down the inner side of the thigh and even in the knee is due to irritation of the obturator nerve, which lies medial to the sac. Irritation of the geniculate branch of this nerve causes pain in the knee. The sac, which usually contains small intestine, may in very rare cases strangulate between the two layers of the obturator membrane.

Repair has not often been attempted, and this would seem to be important, as a case was reported by Corner in 1908 in which a patient suffered two recurrences of strangulation in six years. There is little doubt that the obstruction in 1948 in the above case was also due to an obturator hernia which was reduced and not repaired.

I would like to thank Mr. T. W. Mimpriss, who performed the hernial repair, for his help in the production of this report.

B. W. T. PENDER, F.R.C.S.

Members of the medical profession and public health workers from Italy, France, British Guiana, Singapore, and Brazil have been attending a three-weeks public health course in Bristol arranged by the British Council in association with the city's medical officer of health and the university. Demonstrations were arranged of sanitation in the house and in restaurants and other public places, the handling of food and drink, and the control of nuisances and offensive trades. Housing problems were also considered, both in the city of Bristol and in rural areas. Finally, those attending the course had the opportunity of observing how the maternity and child-welfare service was organized.

Reviews

SURGICAL TECHNIQUE

Techniques in British Surgery. Edited by Rodney Maingot, F.R.C.S. (Pp. 733; 473 figures. £3 15s.) Philadelphia and London: W. B. Saunders Company. 1950.

This book consists of a number of separate articles on various surgical subjects written by 29 distinguished British surgeons, each article being on a subject in which the author is an acknowledged expert. As might be expected, every article reaches a high level both in matter and presentation, but the uniformity of the level is evidence of careful selection by the editor, and he is to be congratulated on his judgment. The production is of the highest order, and results in a volume as attractive in appearance as it is valuable in content.

It is not easy to review a series of articles as varied in aim as in authorship, and it is impossible even to refer to them all. They fall, however, into certain natural groups. In the first we would place a series of longer articles on subjects of interest to the general surgeon, if such a being any longer exists. They are at least of vital importance to all who have to deal with a wide field of surgery. We shall refer to them in the order in which they appear.

Bennett describes the treatment of empyema thoracis in an excellent article, beginning with a discussion of the principles involved and the means available for the precise diagnosis upon which the success of treatment is shown to depend. He clearly describes conservative treatment and active surgical treatment with a wealth of detail which every surgeon will appreciate. Chronic empyema is as fully discussed, and he gives useful hints for handling these difficult cases. The whole article is obviously the outcome of wide experience and is of great value.

Ian Aird discusses in a practical way the diagnosis and management of acute intestinal obstruction. In treatment he stresses the value of gastro-duodenal suction combined with intravenous fluid, deferring operation to the moment of choice, and he makes useful practical suggestions on these matters which seem so simple to those without experience. The discussion of operations is clear and apposite.

Norman Tanner discusses the surgery of peptic ulcers in an article which for sound approach and practical detail could not be excelled. For partial gastrectomy the procedures he adopts are the Polya–Hofmeister and Billroth I operations, and these he describes with great clarity and completeness. Every point of precise technique is studied and illustrated, and every surgeon in this field will appreciate the vast experience which is so generously placed at his disposal. The difficult problems of anastomotic ulcers, perforation, and haemorrhage are well discussed, and the whole article is obviously inspired by sound judgment in which daring and caution are well balanced.

F. H. Bentley considers acute infections of the hand and succeeds in compressing an immense amount of valuable information into small compass. It is not every surgeon who realizes the great importance of these conditions and who is prepared to devote to them the care and attention which they demand. The advent of penicillin has vastly increased the possibilities of success, but it has in no way reduced the need for care and skill, and every surgeon who has to treat these difficult conditions will value this practical guide, full of precise detail such as can result only from ripe experience.

The management of senile and diabetic gangrene is discussed by A. M. Boyd in a brilliant and original paper. He shows that obliterative vascular disease includes a number of separate entities in which spasm, trauma, degeneration, and thrombosis all play a part. His thesis is illustrated by a series of arteriograms which make quite clear the essential points in differential diagnosis. The important differences between juvenile and senile obliterative arteritis are well explained, as are the corresponding differences in treatment. He discusses treatment in detail and brings much light and not a little hope into a region of surgery hitherto lacking both.

In the second group we place those articles on subjects which are now properly regarded as the field of the specialist. In every case these reach a very high level. The modern treatment of head injuries is discussed by Rowbotham; he describes technical points clearly, and operation details are well illustrated. Lambert Rogers has an interesting article on spinal tumours, and succeeds in giving a useful condensed account of diagnosis and operative work.

Piercy gives an admirable account of the thyroid gland and discusses fully every aspect of its surgery. The preparation of the patient and important preliminaries to operation are clearly set out; he then gives a clear and detailed description of operative removal of the gland. There is no field in which detail is of more importance, and here every detail is shown clearly in beautiful illustrations. The article is a masterpiece of effective condensation.

Pneumonectomy is discussed by Holmes Sellors and pulmonary tuberculosis by Price Thomas in articles which are in a sense complementary and are on a highly specialized field of work. As one would expect, both articles reach a very high standard and show clearly the great advances of recent years. In both great attention is properly given to the special technique involved, and it can be readily followed from the fine illustrations supplied.

Articles on vagal resection by Daintree Johnson and on cardiospasm by Maingot deal effectively with two difficult problems and deserve close attention. Vaughan-Jackson supplies an admirable paper on arthrodesis of the hip, knee, and ankle, describing in detail the latest practice, and Lawson Dicks gives a clear account of bone transplants in bone and joint injuries. Wakeley brings forward many interesting points in a short article on cysts of the epididymis.

Also on specialized work is a fine article on congenital defects of the heart by Mercer, with much valuable detail from his own experience. Keynes presents a brief but masterly description of thymectomy for myasthenia gravis, to which he has made so distinguished a contribution. Illingworth describes the operative treatment of carcinoma of the head of the pancreas, largely from his own work in this advanced field of surgery.

Dennis Browne describes an ingenious operation for hypospadias, and contributes articles on congenital disorders of the hip and talipes. Discussing the rectum, Norbury gives an interesting account of benign strictures, while Lloyd-Davies and Naunton Morgan describe the combined operation for carcinoma with which they have obtained brilliant results.

Here we can only mention other articles—each of importance in its own field—on Parkinson's disease, by Oliver; on mammaplasty, by McIndoe; on aseptic anastomosis and on herniae, by Monro; on radical prostatectomy, by Millin; on female stress incontinence, by Read; on

recurrent dislocation of the shoulder, by Crawford Adams; and on nerve suture, by Zachary.

The whole book is characterized by clear and concise presentation and contains in brief form an extraordinary amount of important detail. It is a masterpiece of production, and the illustrations are exceptionally well chosen and of a high artistic level. We would congratulate the editor and all the contributors on a brilliant achievement which does honour to British surgery.

HENRY SOUTTAR.

ANTIHISTAMINES

The Antihistamines. Their Clinical Application. By S. M. Feinberg, M.D., and others. (Pp. 291. $4.) Chicago: The Yearbook Publishers Inc. 1950.

The comparatively recent introduction of antihistamine substances into clinical practice, the multiplicity of preparations available, the claims and counter-claims for their efficacy in this or that condition, and yet their known wide sphere of therapeutic usefulness make a short book on the subject welcome, especially when it is written by acknowledged experts. This work condenses the facts, crystallizes the essence, and presents the practical application of our present knowledge of these drugs. The approach is mainly clinical, though there is a short introductory section on the part played by histamine in the production of anaphylaxis and allergy and on the chemistry of the antihistamines, without which an intelligent understanding of the practical application of these drugs is impossible. The clinical work is largely based on the authors' own experience, but 586 references are quoted—a solemn thought when it is considered that they represent only a fraction of the papers published on the subject. It is refreshing to find that European literature is widely referred to, which has not always been a feature of many otherwise excellent American works.

The authors conclude that, properly used, antihistamines are almost specific antidotes in urticaria and angioneurotic oedema, of great value in hay fever and to a slightly less extent in perennial vasomotor rhinitis, and of occasional benefit in the pruritic dermatoses; that used topically they have a part to play in various dermatitic, nasal, and bronchial conditions; that "dramamine"—the 8-chlorotheophylline salt of "benadryl"—prevents motion sickness in a very high proportion of cases, though it is acknowledged that adequate comparative studies with hyoscine have not been made to test the relative efficacy of the two drugs; and that antihistamines are of little or no value in the treatment or prevention of asthma, the common cold, and acute nephritis. Most authorities in this country will entirely agree with these views. The book contains a mass of useful information and may be confidently recommended to the practising doctor.

D. M. DUNLOP.

PAPERS ON PSYCHO-ANALYSIS

The Psycho-Analytic Reader. An Anthology of Essential Papers, with Critical Introductions. Edited by Robert Fliess, M.D. The International Psycho-Analytical Library, No. 38. (Pp. 358. 18s.) London: The Hogarth Press. 1950.

This is an anthology of twenty-six psycho-analytical papers, short and long, most of which have been hitherto either inaccessible to the English reader or likely to escape his attention. It will be of service to the psycho-analytical student, but rather baffling to those who are not already grounded in psycho-analytical theory and who cannot therefore be expected either to appreciate or to understand fully a mixed bag of unfamiliar communications.

Of special interest to the psychiatrist are Tausk's paper on the "Influencing Machine" in schizophrenia and Brunswick's supplement to Freud's analysis of the famous Wolf-Man case. A small collection of papers by Abraham includes that on the "Impostor" (1925), in which Abraham described how a "wife-mother" transference brought about the social regeneration of a chronic criminal psychopath. The most systematic part of the book contains papers by Deutsch, Lampl-de Groot, and Brunswick on that bone of psycho-analytical contention, the development of female sexuality.

Like most anthologists, Dr. Fliess mars his good effects by including a number of superfluous scrapings from the porridge-pot. Reich's articles on characterology are meagre fare which should have been omitted from the menu. The editing is efficient, if sometimes lacking in discrimination.

EDWARD GLOVER.

BOOKS RECEIVED

Review is not precluded by notice here of books recently received

Papers of the Michigan Academy of Science, Arts, and Letters. Edited by E. S. McCartney and H. Van der Schalie. Vols. 32 and 33. (Pp. 522 and 414. 60s. each volume.) London: Geoffrey Cumberlege. 1950.

Congenital Heart Disease. By J. W. Brown, M.D., F.R.C.P. 2nd ed. (Pp. 344. 30s.) London: Staples Press. 1950.

Applied Mycology and Bacteriology. By L. D. Galloway, M.A., and R. Burgess, M.Sc., Ph.D. 3rd revised edition. (Pp. 184. 12s.) London: Leonard Hill. 1950.

A Textbook of Biochemistry. By P. H. Mitchell, Ph.D. 2nd ed. (Pp. 695. 51s.) London: McGraw-Hill Book Company. 1950.

The Royal Cancer Hospital Mechanically Sorted Punched Card Index System. Edited by the Records Committee. 2nd ed. (Pp. 102. No price.) London: Royal Cancer Hospital. 1950.

Orthopaedic Surgery. By W. Mercer, M.B., Ch.B., F.R.C.S.Ed., F.R.S.Ed. 4th ed. (Pp. 1,016. 50s.) London: Edward Arnold. 1950.

Memories of Eighty Years. By J. B. Herrick, M.D. (Pp. 270. 37s. 6d.) London: Cambridge University Press. 1950.

Dible and Davie's Pathology. By J. H. Dible, M.B., F.R.C.P. 3rd ed. (Pp. 963. 54s.) London: J. and A. Churchill. 1950.

Wheeler and Jack's Handbook of Medicine. Revised by R. Coope, M.D., B.Sc., F.R.C.P. 11th ed. (Pp. 648. 20s.) Edinburgh: E. and S. Livingstone. 1950.

Illustrations of Bandaging and First Aid. Compiled by L. Oakes, S.R.N., D.N. 4th ed. (Pp. 308. 8s. 6d.) Edinburgh: E. and S. Livingstone. 1950.

The Scottish Chemists' Index of Modern Remedies. 5th series. (Pp. 86. 5s.) Glasgow: The Scottish Chemist. 1950.

An Eighteenth Century Lectureship in Chemistry. Edited by A. Kent, M.A., Ph.D. (Pp. 233. 21s.) Glasgow: Jackson. 1950.

Problems of Infancy and Childhood. Edited by M. J. E. Senn, M.D. (Pp. 156. No price.) New York: Josiah Macy, jun., Foundation. 1950.

Doctor Come Quickly. By F. J. Clancy, M.D. (Pp. 248. $2.95.) Seattle: Superior Publishing Company. 1950.

Psychiatrie Générale. By P. Guiraud. (Pp. 664. No price.) Librairie le François. 1950.

Dermatosi Piogeniche. By E. G. Scolari and others. (Pp. 191. No price.) Florence: Soc. Editrice Universitaria. 1950.

Heparin und Heparinoide Dicumarol. By Th. Halse. (Pp. 225. 13.50 francs.) Zurich: S. Hirzel. 1950.

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WORLD MEDICAL ASSOCIATION

The Fourth General Assembly of the World Medical Association met this year in New York from October 16 to October 20, under the presidency of Dr. Elmer L. Henderson, also President of the American Medical Association. The week before this the Council of the W.M.A. and its committees were hard at work consolidating what has already been done and preparing plans for the future. On its social side the New York meeting was a brilliant success owing to the thoughtfulness and generosity of our colleagues in the U.S.A. and the hard work of preparation done before the meeting by the Secretary-General, Dr. Louis H. Bauer, and his assistant, Miss Natwick. No one who was fortunate enough to be present will forget the annual dinner given by the American Medical Association or the visit to West Point, when Major-General Bryant E. Moore said that the promotion of closer ties among national medical associations might help to diminish the intensity of national ambitions and remove the causes of enmity. The same note was struck by Dr. Henderson in his speech at the dinner. He observed that if co-operation proved to be possible in one field of international activity, then it should be possible "in the entire broad pattern of international relations."

Although it is said of every international congress, it can be said with even greater force of a meeting of representatives of 39 different national medical organizations—that the value of such a congress lies not so much in the speeches and discussions in public session as in the informal meetings and conversations outside the assembly chamber. Medical men from East and West quickly find that, however different their circumstances, their professional problems are remarkably alike, and in the informal exchange of conversation it is possible to learn more than in formal debate. For these reasons alone it is once more to be regretted that there was no medical man representing Russia or those States under her domination. It is not easy to understand why they hold back, because even if they may think they have nothing to learn, surely they would not dislike the opportunity to teach. The great thing about the W.M.A. is that discussion is free and views are exchanged without fear or favour. It is difficult to see how a synthesis of news and views can be reached in the absence of the give-and-take of discussion or, in Marxian terminology, in the absence of thesis and antithesis. It is to be regretted too, as Dr. J. A. Bustamante informed the Assembly, that the rules of the Argentina Medical Association forbid it to have affiliation with any other medical group. The doctors of Argentina are therefore not represented in the W.M.A. It is much to be hoped that these barriers will in time disappear and that the W.M.A. will be strengthened and made truly international by the inclusion in it of representatives from the great Slav countries and of the largest country in South America. In this respect the World Health Organization (W.H.O.) also suffers, although it has differed from the W.M.A. in that the U.S.S.R. did to begin with belong to W.H.O. and through its hard-working delegates make a substantial contribution. The W.M.A. and W.H.O. share many other things in common, a point that was stressed by Dr. Edward J. McCormick, of the Board of Trustees of the American Medical Association, when he stated during the meeting in New York that there was no conflict between the two. The General Assembly welcomed the opportunity of hearing the Director-General of W.H.O., Dr. Brock Chisholm, speak at its meeting. Discussions between the principal officers of the W.M.A. and W.H.O. next year should bring these two organizations much closer together. Their objects and aims coincide at so many points as to make each indispensable to the other.

The W.M.A. is of course still in its early infancy. In its brief three years of existence it has certainly gone a long way to reach its first declared objective—namely, "to promote closer ties among the national medical organizations and among the doctors of the world by personal contact and all other means available." Under the guidance of its Chairman of Council, Dr. T. C. Routley, it has done a vast amount of work in studying and reporting on the professional problems which confront the medical profession in different countries, to refer to another of its objectives. The 174-page book presented to the delegates at New York gave in three languages an account of what has been done in the past year. We may instance, for example, the highly interesting report on pharmaceutical practice in 24 countries and also that on social security schemes in 13 countries. Other and shorter reports were on standard nomenclature, an international pharmacopaeia, and on medical education: in the last of these the W.M.A. is taking a quickening interest. It is, however, difficult to bring these subjects to life in the General Assembly. According to a familiar pattern the chairmen of the various committees present their reports to the Assembly, and then, by a side-wind as it were, a long discussion takes place on such a subject as euthanasia. The Press on both sides of the Atlantic seizes on this topic for its news value, and ignores the duller, but more significant, matters before the meeting. However fascinating

a subject euthanasia may be for debate, it was hardly to hear this discussion on an impromptu basis that delegates had travelled several thousand miles. That it aroused interest instead of the discussion on the formal reports of committees points perhaps to a weakness in the mechanism of the General Assembly. If this is to be a live part of the W.M.A. structure in the same way as the House of Delegates is of the American Medical Association and the Representative Body of the B.M.A., then the delegates who are not members of Council must have the opportunity of being more fully informed of the subjects for discussion. They must also be fully informed of the attitude of their own national organizations to these questions. They must come not only with as full as possible a knowledge of the items on the agenda, but with authority to put forward the views of their own organizations. This can be done only if the national associations take a more active interest in the work of the W.M.A. and make provision in their annual time-tables for a thorough review of those matters under consideration by the W.M.A. At the moment too heavy a burden is being placed on those individuals who serve on the Council and committees of the W.M.A. It is their initiative and enthusiasm which have put the W.M.A. on the international map. But the time has come for this to be backed up in a more consecutive and organized fashion by the 39 national medical associations who represent the 500,000 doctors belonging to them.

X-RAY DIAGNOSIS OF PLACENTA PRAEVIA

Placenta praevia is, in the first place at least, usually diagnosed by inference. The stage of gestation, the nature of the bleeding, the non-engagement of the presenting part afford evidence for a presumptive diagnosis and are in themselves sufficient to warrant the transfer of the patient to a hospital where caesarean section or other appropriate treatment can be employed at short notice. But not infrequently these signs and symptoms are inconclusive, and it becomes necessary to distinguish between placenta praevia and other causes of antepartum haemorrhage. Digital palpation is generally used, but this procedure carries a very definite risk. Brisk haemorrhage may be provoked—haemorrhage that becomes alarming and, despite rapidly instituted transfusion, may endanger the life of the mother and, more particularly, the life of the foetus. Alternative methods of diagnosis are therefore desirable; and to this end modern radiology has much to offer.

Unfortunately, save in very unusual conditions (extensive calcification), the placenta does not throw any shadow by which it may be distinguished from its immediate surroundings. The early attempts at diagnosis were therefore based on indirect methods. One of these was to inject a radio-opaque substance into the amniotic fluid in order to outline the amniotic sac; any localized interruption of the rounded contour was taken to indicate the placental position. Another method was to inject an opaque substance into the urinary bladder and to measure the thickness of the soft tissue intervening between the bladder and the presenting part of the foetus (usually the foetal head). This method enabled a presumptive diagnosis to be made for or against the presence of a low-lying, anteriorly placed placenta. For various reasons neither of these methods has gained much favour with clinicians, and until recent times an easy and reliable method of radiological diagnosis of placental position was an intriguing but seemingly uncapturable will-o'-the-wisp. In 1934 Snow and Powell[1] claimed that the uterine wall, placenta, and amniotic fluid could, by simple and direct methods, be collectively displayed with sufficient clarity to enable a localized thickening indicative, they claimed, of placental site to be identified in a majority of cases. They chiefly used the lateral position for radiography (as distinct from the usual antero-posterior position), because the soft tissues of the pregnant abdomen could then be displayed without confusion from shadows of overlapping skeletal structures. Moreover, the placenta (which is usually attached to either the anterior or posterior uterine wall) could then be seen to better advantage.

Many workers, mostly in the U.S.A., quickly followed the lead. Notable among these were Dippel and Brown,[2] who gave a clearer and fuller account of the technical problems encountered. These latter workers claimed a correct diagnosis of placenta praevia in each of 11 cases in which subsequent verification became possible. With this promising start it is surprising that the merits of the new method have not been more generally acknowledged outside the U.S.A. Two reasons for the tardy acceptance may be cited. In the descriptions given by Snow and Powell and the other early exponents insufficient attention was paid to an accurate description of what did and what did not constitute placental site. For example, Dippel and Brown were content to state: "The placenta is localized in the region where the structures between the outer uterine wall and the foetal soft parts are definitely increased in thickness." Nor did these early workers more than barely acknowledge that confusion is sometimes caused by the presence of amniotic fluid in greater than average amount; yet this complicating factor is, in fact, the greatest single cause of error in the interpretation of the radiographs. In this country the possibilities of the method were early explored by Chassar Moir.[3] In a series of experiments he showed that, contrary to Snow and Powell's belief, the placental

[1] *Amer. J. Roentgenol.*, 1934, **31**, 37.
[2] *Amer. J. Obstet. Gynec.*, 1940, **40**, 986.
[3] Ibid., 1944, **47**, 198.
[4] *Brit. J. Radiol.*, 1949, **22**, 81, 557, and 643.

wall, the amniotic fluid, and the placenta all threw shadows of equal radiographic density, and that in normal circumstances it was impossible to distinguish any one of these structures from the other two. His investigations left no doubt that the definition previously offered of what constituted placental shadow was much too facile, and the accuracy of interpretation of some of Snow and Powell's original specimen radiographs and tracings was seriously questioned. Nevertheless Moir acknowledged within limitations the possible use of the method; his chief plea was for a more careful definition of the characteristics of the placental shadow.

Recently a comprehensive reinvestigation of the whole subject has been made by Reid[4] in Oxford. In a series of three papers he has covered the theoretical basis and practical application of this method of soft-tissue radiography. His conclusions are these. By appropriate technique and use of an exposure-equalizing filter a lateral radiograph of the pregnant abdomen will in a majority of cases reveal the placental site, though some experience is necessary to ensure a correct interpretation of the shadows. In doubtful cases re-examination with the patient in such a position that gravity bears on the foetus from a new direction will usually clear up any uncertainty of diagnosis. Gravity, he found, causes the foetus to sink to the lowest part of its amniotic bath. With the mother in the lateral recumbent position the foetus settles against the lower lateral wall, where, unless there are complicating factors, it will lie equidistant from the front and back walls of the uterus. With the mother in the erect position it will lie in contact with the anterior uterine wall, and with the mother in the dorsal reclining position it will lie in contact with the posterior uterine wall. These and other criteria have enabled Reid to diagnose placental position correctly in nearly all those cases in which subsequent verification became possible. Reid's work has recently been discussed at a meeting of the Section of Gynaecology and Obstetrics of the Royal Society of Medicine, and a report of the discussion is given elsewhere (page 1055).

So much for the identification of placental position in general. The foregoing methods hold good also for the diagnosis of placenta praevia, and others are available. Presumptive evidence is usually obtained by noting that the localized thickening of the uterine wall (placental site) is at a low level and continues towards the lower uterine segment—where, however, it becomes obscured by the overlapping shadows of the pelvic bones. There is also a lack of any shadow that could be held to represent placenta in the upper part of the uterus. A further diagnostic feature to which Reid directs special attention is that the presenting part (usually foetal head) is constantly displaced above the pelvic brim. The displacement, which is chiefly from the sacral promontory or from the symphysis pubis, according to the position of the placenta, is constant; and if this abnormality of head–brim relationship is maintained in a second radiograph in which use is made of the effect of gravity on the foetus the diagnosis of placenta praevia becomes fairly certain. In Reid's own work positive radiographic evidence of placenta praevia was found in 47 out of 50 cases in which there had been clinical proof of that condition. In 73 cases in which placenta praevia was diagnosed or suspected radiologically but without clinical diagnosis of that condition, 31 later presented clinical evidence of placenta praevia. The remaining 42 patients delivered themselves normally, and clinical evidence of placenta praevia was neither sought nor found; in many of these a low implantation of the placenta was probably present.

This modern development of radiology is important. No longer need the obstetrician remain in such doubt about the position of the placenta or be so severely tempted as to make vaginal examinations in dangerous and unsuitable circumstances. Finally, there is a further point in favour of radiological examination: indication is sometimes given of the presence of a major degree of placenta praevia when bleeding has not yet occurred and when the only abnormality has been an unexplained high position of the foetal head. Appropriate treatment may then be planned in safe advance of any bleeding.

GENERAL PRACTITIONERS' CONFERENCE

Although the Health Service has been running for over two years, the medical profession, and particularly general practitioners, are still disquieted by many of the conditions under which they have to work. When the Conference of Local Medical Committees met on October 26, motions implying dissatisfaction with pay dominated the agenda, though the conference warmly endorsed one from Yorkshire East Riding emphasizing that the Health Service has tended to lower the status of the general practitioner. These have for some time been the two main themes in the correspondence columns of the *Journal*. The body of the conference, representing as it does all general practitioners in the Health Service, proved itself to be watchful both of its executive committee's activities and of the Government's regulations.

The General Medical Services Committee, an autonomous committee of the B.M.A., acts as the executive of the Conference of Local Medical Committees. It is interesting to note that a voluntary organization provides the executive mechanism for representatives of statutory committees. The implications of autonomy have often been debated and its wisdom questioned, but there can be no doubt that it is a convenient arrangement and one which, however difficult to define, works well in practice. The Conference showed a lively independence when debating whether to change the date

of its annual meeting from the autumn as at present to the early summer just before the Annual Representative Meeting of the B.M.A., and preferred the existing arrangement, one argument for its preference being that the Conference should look as well as be autonomous. Delegates are sent to these conferences by the local medical committees—statutory bodies recognized by the Minister of Health and representing general practitioners in the areas of executive councils. These committees are the heirs of the old medical and panel committees and do much the same work, though there is more of it. They watch over the interests of general practitioners locally, appoint members to the executive councils, and their representatives meet at this conference to hammer out an agreed policy. As representatives of the profession in their respective areas they play an important part —and a successful one—in keeping medical practitioners as free as possible from outside interference. Doctors new to general practice will find the secretary of their local medical committee a useful adviser, and he will be able to give guidance on the many regulations that now control, and sometimes ensnare, the practitioner.

Many administrative problems that are part of the daily work of these committees were before the meeting, which was deftly guided through its agenda by the chairman, Dr. W. Jope. But of first importance was the action to be taken to obtain juster remuneration for general practitioners, the terms of which are still not settled with the Ministry. Inquiries into earnings and expenses are being made, and it had been expected that these would be completed by the end of the year. That they are unlikely to be was accepted by the meeting as beyond the control of the Ministry or of the G.M.S. Committee. The representatives decided therefore to meet again at a special conference in March next year, or earlier if the inquiries are finished before that date. Though doctors are naturally restive about the continued delay, much of which in the past has been the result of the Ministry's dilatoriness in the face of pressure from the G.M.S. Committee, no other course was possible. The Whitley machinery for general practitioners has not been used in the present dispute mainly because agreement has not been reached between the staff and management sides of the General Whitley Council on a satisfactory arbitration formula, and negotiations therefore continue as before.

Meanwhile local meetings of the British Medical Guild are being held for further discussions with a view to collecting resignations from the Health Service if the present inquiries do not lead to a satisfactory solution of the problem; that is, the Conference decided not to collect resignations until the inquiries are complete. These will be held ready to use if the drastic step of withdrawal ever becomes necessary. If this threat is to be effective, 80% of general practitioners' signatures are required, and the Conference agreed that any number much below that would jeopardize their bargaining power. In addition the meeting decided, in opposition to what some thought to be wiser counsels, that mass withdrawal could not be effective without withholding Ministry of National Insurance certificates. The argument that these certificates do not have to be signed by medical practitioners weighed little with the meeting, and the feeling of the representatives was clear that doctors would have a powerful weapon in refusing to give them. Whether they will use it if the time comes seems to be a matter worth examining again in the circumstances then.

The Health Service disciplinary machinery has been criticized recently in our correspondence columns, and it was again at the Conference. A full investigation into it was asked for, as well as a number of detailed changes. Meanwhile a special subcommittee of the G.M.S. Committee is examining the whole machinery, and the committee has already requested that a number of alterations be made. On the whole the machinery seems to work fairly, for the present arrangements have evolved through long experience under National Health Insurance. But continued scrutiny of such an important subject is needed, and no doubt the G.M.S. Committee will give it.

BURNS

Over this week-end the children who have held on too long to the firework or been too close to the bonfire will be keeping some doctors busy. Elsewhere in this issue Mr. R. P. Osborne and Mr. J. P. Reidy, in separate papers, give their detailed views on the various stages of the treatment of burns. Those familiar with the wonders wrought by prompt and adequate shock treatment, early grafting of deep burns, and skilful plastic repair at a later stage will agree that great advances have been made during the last decade. Although modern therapy has saved many patients who would formerly have died and has eased the lot of many survivors, there is still little cause for complacency about the continued high incidence of burns. Colebrook[1] has stated that in England and Wales some 100,000 patients each year require hospital treatment for burns and scalds. Between 20,000 and 30,000 of these patients are admitted for an average stay of not less than 50 days. In the year 1938 burns caused as many as 1,241 deaths. Although the mortality has fallen by half since that time there does not seem to have been any great reduction in the number of accidents causing burns. The medical profession has in some ways been too preoccupied with the strictly medical aspects of this problem, and more serious thought should be given to effective preventive measures and the provision of more burns centres.

It is known that one-fifth of all fatal and a half of all non-fatal accidents in the home are due to burns and

[1] *A New Approach to the Treatment of Burns and Scalds*, 1950. London.
[2] *An Inquiry into Accidents in the Home*, 1950, Report of Domestic Accidents Panel, Ministry of Works.
[3] *Lancet*, 1950, **2**, 305.
[4] Ibid., 1950, **2**, 260.
[5] *British Medical Journal*, 1950, **2**, 360.

scalds.[2] A large number of these are preventable: the majority of the victims are small children, and many of the most serious cases are due to the ignition of clothing by unprotected fires. The menace of the unprotected fire has again been pointed out recently by Colebrook,[3] who has especially emphasized the danger of electric fires. At the present time we in this country manufacture properly guarded fires for export to some countries, but we tolerate the sale of incompletely guarded ones for ourselves. It is indeed regrettable that the manufacturers of electric and gas fires have not yet reached agreement about fire-guards. The fire-proofing of clothing materials is another matter of great importance. Nine out of ten fatal burns admitted to the Birmingham Accident Hospital were due to the ignition of clothing.[4] Colebrook has even suggested that it might be more economical to subsidize the cotton industry to produce safe materials than to endure the financial costs and physical suffering which result from accidents of this kind.

Whatever success may attend our efforts in the prevention of burns, it still remains to be decided what are the best conditions in which to treat the burns that do occur. The magnitude of this problem is not always appreciated by general surgeons, who for the most part see few cases in the course of each year. The treatment of these patients in general wards is usually most unsatisfactory: the case fatality rate of severe burns may be reduced two- or three-fold when the patients are treated in special burns centres, while the period of incapacity is shorter and the functional results are much better. Osborne thinks that the present financial state of the National Health Service is likely to preclude the formation of burns units on the scale of that at the Birmingham Accident Hospital, but it need not necessarily be assumed that a determined professional declaration in favour of burns centres would be met by any serious official resistance. The only way to match the very high standards set by the few existing centres is to establish others in large towns and industrial centres. It would cost relatively little to convert part of the accommodation in a few large general hospitals, and, since new beds would not be needed but rather more efficient use of those at present available, there should be no great difficulty in finding the nurses. Where nursing difficulties do exist, and particularly in wartime or after some major fire disaster, there would seem to be a strong case for the "exposure" method of treatment recently described by Wallace,[5] of Edinburgh. Although some have argued that Wallace's method is not applicable to deep burns, this method is worthy of fuller trial. Even if it seems advisable to apply dressings later on in the treatment of deep burns, the exposure method would obviate much labour and difficulty in the early stages. The early establishment of one burns unit in the metropolitan area (probably four or more would eventually be needed), preferably in association with, though not necessarily in, a teaching hospital, should be all that is necessary to persuade doctors and administrators alike that these units are thoroughly necessary. From the educational standpoint, it would be possible to teach students in a few days what they rarely learn at present in the whole course of their clinical training. The all-round benefits of this policy to both patients and the profession would be out of all proportion to the effort made.

FACIAL NEURALGIA

Neurology owes a debt of gratitude to Dr. Wilfred Harris for his pioneer and long-continued work on the causation and treatment of facial pain. Though Schlösser[1] in 1903 was the first to inject alcohol into the peripheral branches of the trigeminal nerve at their foramina of exit from the skull as treatment for trigeminal neuralgia, it was Harris[2] who in 1910 was the first to inject alcohol into the Gasserian ganglion. His first patient obtained complete relief of pain for the remaining 27 years of his life.[3] In 1940 Harris reported that he had treated at least 2,500 patients suffering from trigeminal neuralgia. His advocacy of the method of alcohol injection and the excellent results obtained in so many cases treated by him and by those experienced in his technique have placed the procedure in the forefront of the methods of treatment of this disease. Though operative section of the sensory root of the trigeminal nerve may be the method of choice in some younger patients, alcohol injection is to be preferred in the many elderly victims of the disease and in those who do not want an intracranial operation. It was Harris also who stressed the frequency of trigeminal neuralgia in disseminated sclerosis and who showed that injection would cure the pain in these patients. This was an important but rather surprising finding, since an intramedullary cause for the pain might be postulated, and other facial pains of intramedullary origin, such as the pain which may occur in syringobulbia or following a posterior inferior cerebellar thrombosis, are not relieved by ganglion injection or sensory root section. In the opening pages of this issue Harris again discusses the relationship of certain forms of trigeminal neuritis to disseminated sclerosis.

In 1921[4] he described another type of paroxysmal facial pain, glossopharyngeal neuralgia. This is very much rarer than the trigeminal variety, but causes pain of similar character and intensity, the distribution being in the lateral region of the throat and tonsil and around the ear, spreading to the back of the lower jaw. The pain tends to come on after yawning, swallowing, eating, and talking, and sometimes after the mouth of the external auditory meatus has been touched. Harris showed that this type of neuralgia could be cured by avulsion of the glossopharyngeal nerve as high in the neck as possible, though intracranial section of the nerve is thought by some to be the more satisfactory treatment. In 1926[5] and 1936[6] Harris threw further light on the problem of facial pain by his description of migrainous or ciliary neuralgia. In this not uncommon condition attacks of pain round an eye, and on the forehead and sometimes the cheek of the same side, occur repeatedly for several weeks, and the patient may then be free of pain for a long period before the pain recurs. The pain is constant and is usually accompanied by unilateral lacrimation and sometimes nausea; it does not possess the paroxysmal quality of trigeminal neuralgia nor is it associated with the usual precipitants of the latter. Harris emphasized its affinity to migraine and showed that the pain could be relieved by alcohol

[1] *Z. Augenheilk.*, 1903, **10**, 335.
[2] *Lancet*, 1912, **1**, 218.
[3] *Brain*, 1940, **63**, 209.
[4] *British Medical Journal*, 1921, **2**, 896.
[5] *Neuritis and Neuralgia*, 1926 London.
[6] *British Medical Journal*, 1936, **1**, 457.

injection of the supraorbital and infraorbital nerves, or more permanently by Gasserian ganglion injection. The fact that some of these patients obtain relief from ergotamine tartrate supports Harris's view of the migrainous nature of the condition.

Many problems of the aetiology and correct treatment of the atypical facial neuralgias remain unsolved, but during the last 40 years Harris has made a series of fundamental contributions to our understanding of facial pain, and, as his paper in this number of the *Journal* shows, he is continuing to use his unrivalled experience to clarify the problem.

CANCER REGISTRATION

With the publication of a booklet on cancer registration in England and Wales[1] the first step in an important new field of public health has been completed. In 1945 the national registration of cases of cancer began. At first only a few centres co-operated, but every year the number has increased, until now there are 74 centres registering cases from some 275 hospitals. All cases treated by radiotherapy are notified, but the proportion notified of those which are treated surgically, or not treated at all, is still low. The primary object of registration is to enable the value of different forms of treatment to be assessed, so that patients may be provided with the most effective treatment. No one institution can provide answers to the question of what are the best results obtainable for cancer of every site, and no specialized institution can provide information about the average prospect for patients living in different regions of the country. Answers to these questions can be achieved only by means of a country-wide follow-up of all new patients on a uniform plan.

The method of registration introduced will help to achieve these results. It will also allow comparisons to be made with the prevalence of different types of cancer in different countries. A subcommittee of the World Health Organization[2] has recommended that "cancer registration projects aiming at ascertainment of follow-up histories" should be encouraged, and has prescribed definitions and rules for their development. Valuable information about the aetiology of cancer can be expected from the comparison of its incidence in different parts of the world, where different social habits predominate. Also important are the methods recommended for calculating the survival and recovery rates after treatment. If uniformly adopted, they will allow comparisons to be made between individual surgeons' results—comparisons which have hitherto been difficult, if not impossible, to make. It will also be possible to determine the prognosis of those cases which are deemed unfit for anything but palliative treatment. The time is past when the natural history of untreated cancer can ever hope to be determined, but it would be useful to know the extent to which "inoperable" differs from "hopeless." Dunphy[3] has recently described two cases, such as all surgeons have heard of, in which spontaneous arrest and regression occurred after their classification as being beyond treatment, and many patients must stay a longer course than is generally expected. Such knowledge will be particularly valuable at a time when new "cures" are being thrust on the public, backed by the evidence of individual cases. It is much to be hoped that the number of hospitals notifying cases will be rapidly extended.

[1] Stocks, P., *Studies on Medical and Population Subjects, No. 3, Cancer Registration in England and Wales: An Inquiry into Treatment and its Results*, 1950. London. H.M.S.O.
[2] *Tech. Rep. Ser. World Health Organization* (to be published). A summary is given in the *Chronicle of the World Health Organization*, 1950, 4, 286.
[3] *New Engl. J. Med.*, 1950, 242, 167.

NOBEL PRIZE, 1950

It was announced from Stockholm on October 26 that this year's Nobel Prize for Medicine has been awarded jointly to Drs. Philip S. Hench and Edward C. Kendall, of the Mayo Clinic, Rochester, Minnesota, and to Professor Tadeus Reichstein, of the University of Basle, Switzerland. This recognizes not only the recent outstanding work (first published last year) on the treatment of rheumatoid arthritis with cortisone and A.C.T.H., but Dr. Kendall's earlier important contributions to biochemistry—the first crystalline preparation of thyroxine on Christmas Day, 1914, the first synthesis of glutathione in 1929, and numerous chemical studies of the adrenal cortical hormones—and also Dr. Reichstein's fundamental chemical work on the steroids of the cortex which led him to the original discovery of cortisone, in 1937, and of desoxycorticosterone acetate, as well as his successful synthesis of vitamin C in 1933.

Dr. Hench was born in Pittsburgh in 1896, and graduated M.D. there in 1920. Practically all his professional life has been spent at the Mayo Clinic, where he became a first assistant in 1923. He has been consultant and head of the section on rheumatic diseases since 1926, and, being much impressed by the remarkable temporary improvements often seen in sufferers from rheumatoid arthritis during periods when they are pregnant or attacked by jaundice, he has since 1929 endeavoured to track down the biochemical factor common to these two conditions which brings relief.

Dr. Kendall, who is 64, graduated from Columbia in chemistry in 1908, and, after gaining his Ph.D., worked for a short time with Parke, Davis and Co., and at St. Luke's Hospital, New York, before becoming head of the section on biochemistry at the Mayo Clinic in 1914. Since the early thirties he has worked on the chemistry of the adrenal cortex, and his Compound E (cortisone) was first produced in minute amounts in 1941: not till 1948 could Merck and Co. prepare enough for clinical trial.

Dr. Reichstein was born at Wloclawek, Poland, in 1897. His family later moved to Zurich, where Reichstein attended the technical high school, graduating as a chemical engineer in 1920. At Zurich he came under the influence of a succession of great chemists, H. Staudinger, Richard Kuhn, and L. Ruzicka, and it was the latter who persuaded him in 1931 to give up his industrially sponsored work on the flavouring matters of roasted coffee and turn to physiological chemistry. He became assistant professor at Zurich in 1934, and professor of pharmacy at Basle University in 1938. In 1946 he was chosen to be head of the division of organic chemistry and director of the laboratories in the same university. He has isolated more than 27 crystalline steroids from the adrenal cortex, and developed many important technical syntheses.

REFRESHER COURSE FOR GENERAL PRACTITIONERS

MANAGEMENT OF THE EPILEPTIC

BY

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The title of this article would imply that epilepsy is a unity, but this is not so. There are clinical variants of idiopathic epilepsy, excluding symptomatic epilepsy, with which we are not at the moment concerned, which differ widely not only in their pattern but in their needs for management and medical care. These must be separately considered, but it will first be profitable to discuss certain general problems, on the assumption that the diagnosis has already been made.

Management of Relatives

Idiopathic epilepsy commonly begins in childhood or early adolescence, so that the diagnosis has to be given and explained to the relatives rather than to the patient, and, as the success or failure of treatment will depend greatly upon the extent of their co-operation, the explanation must be full. They should be told that the occurrence of an epileptic attack means that there is a liability to further attacks—a liability which depends upon some innate or constitutional flaw in the brain that cannot so far as we know be eradicated. As the result of this defect nerve cells are apt to discharge in an explosive way, and this may happen at any time and usually without apparent cause. The main part of treatment will be to give medicines which counteract the explosive tendency; these must be given in such a way that so far as is possible the gunpowder is kept continuously damp. Even without treatment there may be long periods of freedom from attacks. The best medicine and the best dosage for the individual case can often be determined only by trial.

For all these reasons it is important that from the first the relatives shall take a long view of the situation, observing and recording the number and times of attacks, together with any precipitating causes, and be prepared to allow a thorough trial of each medicine or combination of medicines before it is changed. They should be warned that even if the attacks should cease it will be advisable to continue with the treatment for two to three years to ensure against recurrence. After all this, they will need some encouragement and may fairly be told that there are many cases in which the liability is so slight that it is entirely controlled by medicines and the attacks cease; that if they cease for three or four years they will probably not recur; and, further, that there are many more cases in which, though the attacks continue, they are so infrequent as to interfere very little with the patient's life, and their occurrence is known only to his intimates. It may be explained that the proportion of serious cases is small, and that one person out of every two hundred suffers from this malady in some degree.

A question often asked at this stage is whether the medicines given to prevent the attacks may damage the brain. The answer to this is no, but it should be added that some of the medicines which may be used can have the effect of making the patient dull and drowsy for the time being. Any such effect rapidly disappears if the dose is reduced, and no permanent harm can result. On the other hand, the attacks themselves sometimes have a dulling effect on the mind, and if such symptoms should be observed care must be taken in their interpretation. They may mean that the patient is having too little medicine, not too much.

Regime for the Patient

It is important that the epileptic patient should so far as possible lead a normal life, but there are a few general rules to be mentioned.

Attacks may be precipitated by hypoglycaemia. Therefore the patient should not go too long without food. If he is to be exposed to such risk he should carry sweets or chocolate to fill the gap. Extreme hydration is another known precipitant. The ingestion of an abnormal amount of fluid at any one time should, therefore, be avoided. Attacks are apt to occur after a night short of sleep, so if the patient has a late night he should have a late morning. Excessive physical fatigue may sometimes lead to an attack and should be avoided. This does not mean that the patient must not take part in games and normal exercise, only that he should not overexert himself when untrained.

Education.—It has long been recognized by experienced clinicians and, more recently, has been shown by electroencephalographic studies that attacks are more apt to occur when the mind is vacant than when it is busy. Mental concentration therefore is good, not bad, for the epileptic, and his education should proceed normally. In view of his handicap it is even more important for him than for the ordinary person to advance his knowledge.

Avoidance of Accidents.—The risk of making the patient feel different from others must be weighed against that of accidents. The epileptic, of course, cannot hold a driving licence. If liable to attacks during the day he should not ride a cycle on crowded roads. He should not swim unless accompanied by someone who knows his disability and who can take care of him, and he should not go into a crowded swimming-bath. No other restrictions need be imposed unless the attacks are exceptionally frequent.

Diet.—Apart from the ketogenic diet, now seldom used in the treatment of epilepsy, there is no evidence that any dietetic restriction whatever has any influence upon the disease.

Drug Treatment

There are at present three drugs of standard use in the treatment of epilepsy—phenobarbitone, sodium phenytoin (sodium diphenyl hydantoinate; "epanutin"), and troxidone ("tridione"; 3,5,5-trimethyloxazolidine-2,4-dione). Which of these shall be used must be determined by the clinical history, aided occasionally by the electroencephalogram (E.E.G.).

Troxidone is of specific value for attacks which exhibit the following pattern. The onset is usually in childhood; the attacks from the first are of frequent occurrence, often several times daily, and they are sudden, brief, and stereotyped. They may take the form of momentary loss of consciousness, sudden falling with little disturbance of consciousness, or myoclonic jerks of the upper limbs. Recovery

after the attack is immediate. The E.E.G. usually, but not invariably, shows the wave-and-spike form of abnormality, and is therefore a most valuable guide to the use of troxidone in minor epilepsy. This drug is made up in capsules containing 0.3 g. The suitable initial dose for patients aged 12 or older is 0.3 g. thrice daily after food. Between the ages of 5 and 12 the initial dose should be two capsules a day, and under 5 one capsule daily. The toxic effects of the drug are discussed below. Variations in tolerance may compel reduction of the dose or allow its increase if necessary.

The drug has not yet been on trial long enough for a final assessment of its value, but it would seem that in about 25% of cases the attacks are abolished, and in a further 50% they are reduced in frequency to a quarter or less, while in the remainder there is little or no improvement. In the cases which respond to troxidone improvement is generally seen within ten days. If the attacks are abolished the dosage may be gradually reduced after two months and the drug withdrawn at the end of six months if there is no recurrence. When the attacks continue despite treatment the dose should be increased and a watch kept for toxic symptoms. For patients over the age of 12 four capsules a day is usually a decisive one—this is to say, if they do not respond to this they are unlikely to respond at all. If on the maximal dose the attacks are much reduced in number and remain at the same frequency the drug should be gradually withdrawn, when it is often found that the improvement is maintained.

Troxidone is of value only for the type of attack described above (true petit mal) and may aggravate the liability to other types of attack. Combined treatment with troxidone and phenobarbitone or sodium phenytoin is necessary for patients who suffer from true petit mal together with other forms of epilepsy.

Phenobarbitone has replaced the bromides as the most effective of the sedative anticonvulsants. Its main disadvantage is that in some persons an effective dose causes drowsiness and difficulty in concentration. At first the dose should be ½ gr. (32 mg.) thrice daily after food at 12 years or over, ½ gr. night and morning between 5 and 12, and ¼ gr. (16 mg.) thrice daily under the age of 5. The object of treatment is, of course, to control the attacks without causing toxic effects. There is much variation in individual tolerance. For most types of attack it is best to begin with phenobarbitone and, if the attacks are not controlled, to increase the dose to the limit of tolerance; then, if necessary, sodium phenytoin can be given in addition. Many patients will tolerate 3 gr. (0.2 g.) of phenobarbitone a day without unpleasant symptoms.

Sodium phenytoin has not the sedative effect of phenobarbitone and appears rather to inhibit the epileptic discharge than protect the brain from its effects. Thus with its use the attacks may be fewer than when phenobarbitone is given but more severe when they do occur. Often, therefore, a combination with phenobarbitone is desirable. Sodium phenytoin is made up in capsules containing 1½ gr. (0.1 g.). The average dose for a patient aged 12 or over is one capsule thrice daily if it is the only drug given. Or one capsule may be given night and morning together with phenobarbitone ½ gr. thrice daily after food. Sodium phenytoin is also made up in capsules containing ¼ gr. (50 mg.) suitable for younger patients.

Methoin ("mesontoin"; 3-methyl-5:5-phenylethylhydantoin) has an effect comparable to that of sodium phenytoin, but in large doses is less toxic. If, therefore, there is a favourable response to sodium phenytoin but toxic symptoms make it impossible to continue with it, methoin should be tried. It is supplied in tablets containing 0.1 g. For an adult one tablet should be given daily for a week in addition to whatever daily dose of sodium phenytoin the patient has been able to tolerate. The latter drug should then be reduced by one capsule (1½ gr.—0.1 g.), this being replaced by one tablet of methoin, and week by week a further exchange should be made until sodium phenytoin has been entirely replaced by methoin, which may then be increased weekly to obtain the desired effect or to the limit of tolerance. Six tablets (0.6 g.) daily is the average maximal dose for the adult, but double this amount may be tolerated by some patients.

Timing and Spacing of Drugs

The rules for troxidone have already been stated. In the use of phenobarbitone and sodium phenytoin attention should be paid to the time of day at which the attacks usually occur, and the dose should be so divided that the maximum effect is obtained at this time. For example, many epileptics are especially liable to attacks in the first hour or two after waking. Such patients should be given an appropriate dose of phenobarbitone or sodium phenytoin, or both, on waking, with smaller doses during the day. When the attacks are nocturnal only it is unwise to give the whole daily dose at bedtime, for if this is done the attacks may be inhibited during the night and appear during the day with much greater inconvenience. If, for example, such a patient is given 1½ gr. of phenobarbitone at bedtime he should also take ½ gr. two or three times during the day. Female epileptics may be specially liable to attacks about the menstrual period, at which time the dosage should be increased.

Toxic Effects of Drugs

With troxidone blood changes are potentially the most dangerous, either agranulocytosis or thrombocytopenia. All patients treated with troxidone should have their blood examined monthly, and the treatment should be stopped if the absolute neutrophil count falls below 1,600 per c.mm., or if there is a steep fall in the number of platelets. Acneiform, macular, or urticarial rashes may occur. Rarely there is drowsiness and slight ataxia. Photophobia in some degree is common and may require the use of sun glasses in bright weather.

Drowsiness is the most frequent toxic symptom of phenobarbitone. Severe intoxication may cause ataxia, nystagmus, and confusion. A macular rash is seen in some patients who are intolerant of the drug.

Nausea and vomiting occur in some patients if sodium phenytoin is given on an empty stomach. Rashes of an erythematous type are seen in about 5% of cases. Hyperplasia of the gums is not uncommon, but is not a serious symptom. Overdosage occasionally produces drowsiness, ataxia, and nystagmus.

An erythematous rash is the commonest toxic effect of methoin. Drowsiness occurs with overdosage.

Treatment of Status Epilepticus

Status epilepticus is not uncommonly fatal if not promptly treated. Paraldehyde by injection is by far the most effective remedy. For an adult 8–10 ml. of paraldehyde is injected into the gluteal muscle and the site of the injection massaged. The paraldehyde need not be sterilized. If the fits continue 5 ml. of paraldehyde intramuscularly is given half-hourly until they stop. The persistence of local twitching without generalized convulsion is not an indication for continuing the injections. This may last for some time after the emergency is over. If

an immediate effect is required, as in the case of a patient who has been in status epilepticus for some time and is dangerously exhausted, thiopentone may be given intravenously in a dose of 0.25 g. for an adult, followed by intramuscular paraldehyde if necessary.

Social Considerations

Choice of Occupation.—The occupation of the epileptic must be so planned that it will not involve driving a car or any other activity which will involve special risk. Occupations or professions for which a medical examination is required are generally barred. This problem must be faced early. True petit mal in young children, if not associated with any other variety of epilepsy, carries the most favourable prognosis, and when the attacks have ceased for a year or two they can be forgotten, but in the other forms the possibility of recurrence even after a long lapse has to be remembered.

Marriage and Parenthood.—No epileptic should marry unless the prospective partner has been given by the doctor a full explanation of the nature and possible course of the illness. This should be done at a private interview with the patient's written consent. The risk of transmission to offspring is serious only if there is an inherited tendency on both sides. There is evidence which suggests that a person may carry and transmit the liability without any personal or family history of epilepsy, but is then likely to show an abnormal E.E.G. A normal E.E.G. in the non-epileptic partner is therefore an additional safeguard. If the result of these inquiries is negative the risk of an epileptic having epileptic offspring is practically negligible.

Driving Licence.—The applicant for a driving licence is required to answer yes or no to the question, "Do you suffer from epilepsy?" He is instructed if in doubt to get professional advice. Supposing that the applicant, having suffered from epilepsy, has as the result of treatment been free from attacks for two or three years, what should be the professional advice? There is no provision in law which defines the time which must elapse from the occurrence of a seizure before an applicant for a driving licence may be certified as not liable to fits, so that the medical practitioner is entitled to his own opinion and is responsible for balancing the interests of his patient against the public safety. In doing so he should bear in mind that the Ministry of Transport in drawing up the regulations for driving licences were advised by a special committee of experts, appointed by the British Medical Association, that "once an epileptic, always an epileptic," and that any person who has at any time suffered from fits should be refused a driving licence, though no legal ruling was made. If therefore the doctor believes that in a particular case it would be reasonable that an application should be considered from a person who has at one time had seizures, he should give the applicant a statement to this effect with a note of the time (to the best of his belief) which has elapsed since the last attack and the date on which treatment ceased. This statement the applicant can then present to the local authority.

A.C.T.H. is now available to all the 6,572 United States hospitals registered by the American Medical Association. Previously the manufacturers of the drug had restricted the supply to about 100 research clinics and hospitals for experimental use only, but production has now increased to the point where it can be offered for sale to all approved hospitals. On May 1 the price was cut from 250 dollars (about £90) to 100 dollars (about £35) per gramme.

WORLD HEALTH ORGANIZATION

DIRECTOR-GENERAL IN LONDON

Dr. Brock Chisholm, Director-General of the World Health Organization, spoke at the United Nations Information Centre in London on October 26 on the organization and work of W.H.O. He announced that, in response to a request from the Unified Command, W.H.O. was sending five public health teams to Korea to advise on the prevention of epidemics and the restoration of the health services. The teams would work under the Unified Command initially and consist of public health officers, sanitary engineers, and social workers, the last being provided by the social department of the United Nations. Thirteen members had so far arrived in Korea, and were under the command of Dr. Walter Crichton (Great Britain).

"Contracting Out"

After describing W.H.O. services, such as the epidemiological reporting service, biological standardization, and work on an international pharmacopoeia, Dr. Chisholm drew attention to the principle of "contracting out" adopted by W.H.O. in concluding international agreements on health matters. The ratification of the old health conventions was a slow affair and some countries never did ratify them. Under the constitution of W.H.O. a time limit was set within which any country not wishing to adhere to an agreement must notify its reasons for dissenting; otherwise it was bound by the agreement.

Help to Backward Countries

Previously, help had been given to backward countries by sending out skilled teams to perform various services for the inhabitants. But when the outsiders went home "the jungle took over." Now it was recognized that the people of the country must help themselves, and that what should be done from outside was the giving of advice and provision of training facilities in more advanced countries, and the loan of specialized advisers. W.H.O. made available technical personnel who helped backward nations to study their own problems and identify their weak points. W.H.O. had provided 900 fellowships for persons to study abroad; these fellowships, awarded through Governments, covered not only medicine but nursing, hospital administration, and other related fields. There were about 100 W.H.O. fellowship students in Britain at the present time. W.H.O. also supplied medical literature to institutions in different countries.

Teaching teams were sent where they were needed. A Scandinavian team had been to Vienna to instruct surgeons in the technique of the "blue baby" operation, and a British team had been sent to Yugoslavia to demonstrate the techniques of plastic surgery developed in this country during and after the war. Clearly it would not be practicable to send comparable teams to under-developed countries. In Ethiopia, for instance, there were no indigenous doctors and no supporting professions, but there was a high rate of chronic disease. There it was necessary to build a foundation upon which a medical profession could be erected. During the past few years W.H.O. had therefore arranged for the training of nurses and sanitary workers. Two Ethiopians were now studying medicine abroad, but they were sent to study not in Europe but where they could learn in an environment appropriate to the conditions of practice in which they would have to work: they were therefore studying in the Sudan. It was no good teaching doctors and nurses from the back-villages of China public-health procedures which required three telephones on their desks.

Russia and W.H.O.

Dr. Chisholm was asked about the relationship of the U.S.S.R. and her satellites to W.H.O. He replied that at the beginning of last year the U.S.S.R., Byelo-Russia, and the Ukraine wrote letters saying they intended to leave the Organization. These letters were signed only by vice-ministers of health, and the Assembly of W.H.O. refused to recognize these withdrawals. The other Eastern European countries,

except Czechoslovakia and Yugoslavia, had taken similar action. Legally, they remained members of W.H.O., but they were not now being co-operative. W.H.O. continued to make all its facilities available to these countries, just as it did to Spain, although Spain could not be admitted to the Organization until she was admitted to the United Nations.

SCOTTISH FEVER GROUP

The fourth annual meeting of the Scottish Fever Group was held at Knightswood Hospital, Glasgow, on October 7 with Dr. T. ANDERSON in the chair. The morning session was opened by two papers dealing with the use of streptokinase in tuberculous meningitis. Dr. M. B. EADIE (Knightswood) had given streptokinase to alternate patients in a series of 44, all of whom received the same streptomycin regime. When attention was directed to those cases proved bacteriologically and followed up for a period of six months there was no difference between the two treatment groups as regards mortality. Disturbing and severe, though not fatal, reactions had been noted when a second course of streptokinase was given after an interval. Dr. J. T. NAISMITH (Belvidere) described the side-effects noted in 11 patients when intrathecal injections of streptokinase were restarted after an interval of three to four days. The reactions had been of such a severe character that further use of the material had been abandoned. Dr. I. B. L. WEIR (Public Health Department, Glasgow) and Dr. C. D. RIGG (Paisley) drew attention to certain aspects of the recent outbreaks of poliomyelitis in Glasgow and Renfrew. A feature of the 1950 epidemic in Glasgow had been the high proportion of cases in the 0–5 years age-group. Marked differences in the local grouping of cases had also been observed, although there seemed to be a tendency, both in 1947 and in 1950, for the Glasgow cases to occur with greater frequency along main streets. Dr. W. NAPIER (Shieldhall) described four cases of Kaposi's varicelliform eruption and discussed the theories of its pathogenesis. Dr. N. R. GRIST (Knightswood) had examined material from five such cases and had been able to demonstrate an aetiological relationship of vaccinia virus in four of them.

The afternoon session was opened by Dr. A. JOE and Dr. G. SANGSTER (City Hospital, Edinburgh), who described four examples of leptospirosis (canicola) infection in man. A portable apparatus for air-sampling was described by Dr. A. T. WALLACE (City Hospital, Edinburgh), and Dr. A. DRIMMIE (Knightswood) gave the results obtained by using a simple dust-sampler in pneumonia and measles wards. Although there was a high recovery of haemolytic streptococci, the isolation of typable pneumococci was infrequent. Dr. J. LAWSON (Ruchill) drew attention to the increasing importance of acute laryngo-tracheo-bronchitis in an analysis of a series of 14 cases. The mortality was high, despite massive penicillin therapy. The failure of penicillin was probably accounted for by the fact that the pneumococci and staphylococci isolated from the majority of the cases had proved resistant to it. Certain features of the pathology suggested the possibility of a primary virus infection. Aureomycin, which had been used in a few cases, had not been strikingly successful. Dr. J. SMITH (City Laboratory, Aberdeen) recorded his collected results on the presence of agglutinable *Bact. coli* in babies suffering from gastro-enteritis. It was clear that the type of *Bact. coli* isolated was not constant, for the type originally present in Aberdeen (associated with a heavy mortality) had disappeared and from the less severe disease now prevalent a different type had been obtained. Dr. R. H. GOSLING (City Hospital, Edinburgh) had studied a series of 75 cases of salmonella infection, the majority due to *S. typhi-murium*. Despite chemotherapy, the patient might continue to excrete the causative pathogen for as long as four to eight weeks, and Dr. Gosling's analysis showed that those under 2 years of age were most difficult to clear. Dr. B. R. NISBET (Kilmarnock) had performed Schick tests on patients admitted to a maternity hospital. The Schick-negative rates obtained in different age-groups showed considerable variation. The figures suggested that if diphtheria again became prevalent it might show a high incidence among the older and supposedly immune population. Dr. R. H. A. SWAIN (Bacteriology Department, Edinburgh University) reported the results of agglutination studies in cases of glandular fever using the Newcastle disease virus. The test had proved disappointing and had not made a contribution to the diagnosis. Dr. R. S. DEWAR (Strathclyde, Motherwell) had used chloramphenicol in a small outbreak of paratyphoid fever and gave a summary of the results.

Two demonstrations were given, one on the pathology of anterior poliomyelitis by Professor D. F. CAPPELL and the other by Dr. N. R. GRIST showing the appearance of the pock virus infections on the chorio-allantoic membrane.

The meeting was attended by about 70 persons, and the papers gave rise to a lively discussion.

MEDICAL DEFENCE UNION

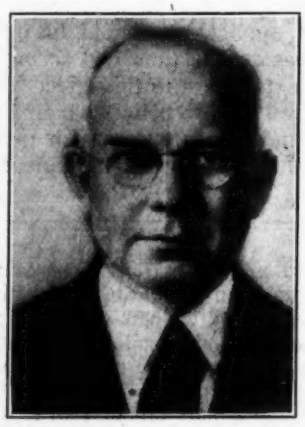
The council of the Medical Defence Union has now issued its annual report and statement of accounts for 1949–50. The Union, under the presidency of Mr. Ivor Back, F.R.C.S., who was elected at the last annual meeting, has as usual had an active year. Membership continues to rise, and in July of this year stood at the record number of 34,452. The Union has recently moved its headquarters to B.M.A. House, where it is installed in offices on the third floor of the South Wing.

It appears from the report that the Union conducted no fewer than 2.125 cases during 1949. But, in addition to this work on behalf of individual practitioners, useful advances have been made in other fields. The Union carried out an examination of the disciplinary procedure of the General Medical Council, and as a result made some 27 recommendations for its improvement. Many of the Union's recommendations have been incorporated in the new Medical Act, and the council pledges itself to press for the incorporation of the remainder in the rules of procedure which will be prepared at a later date. Arising also from the Medical Act, the council has under consideration the

THE NOBEL PRIZE-WINNERS IN MEDICINE

This year the prize is shared among two American workers and a Swiss organic chemist (see the annotation on p. 1046). Photographs by Associated Press.

Dr. Philip Showalter Hench.



Dr. Edward Calvin Kendall.

Dr. Tadeus Reichstein.

special position likely to arise from the creation of a group of "provisionally registered" practitioners. It will be recalled that, before full registration is accorded, newly qualified practitioners are to be required to spend a specified period at an approved hospital, institution, or health centre and to produce to the G.M.C. a certificate of satisfactory service in this appointment.

Since the introduction of the National Health Service there has been a marked increase in the number of complaints made against doctors. The Medical Defence Union stresses the importance of seeking expert advice early when such complaints are lodged. The report draws attention also to the unsatisfactory legal position of hospital medical staff when either the doctor personally or his employing authority is sued for his alleged negligence. The employing authority need not necessarily assume responsibility for the doctor's defence—although ordinarily it will do so in the case of a nurse—and, further, if the complainant seeks to make the hospital authority liable that authority is required to claim from the doctor a contribution towards any damages awarded. A number of other subjects are briefly discussed in the report—the procedure at Service committees, witnesses' allowances, the legality of adding a "ceiling" to an agreed rate of remuneration, notification of infectious diseases, third-party risks, drugs in cars, disputed accounts, etc.

During the year, 199 out of the 2,125 cases handled by the Medical Defence Union were passed to the Union's solicitors. Of these 74 concerned allegations of professional negligence, 38 arose out of inquests, and 20 were due to allegations of libel or slander.

The membership subscription has been raised from £1 to £2 per annum. There is, however, a reduced rate for practitioners joining within three years of registration for their first three years of membership.

EXHIBITION OF MEDICAL PHOTOGRAPHY

The third exhibition organized by the Medical Group of the Royal Photographic Society was international in character. Entries were received from Australia, Austria, the Channel Islands, the Gold Coast, Portugal, South Africa, Sweden, Switzerland, and the United States, in addition to those from the United Kingdom. The exhibition, which was first shown at the house of the Medical Society of London in June, was opened in the museum of the Royal Infirmary, Manchester, on October 7, by Mr. Robert Newell, F.R.C.S., dean of postgraduate studies in the University. The chair was taken by Dr. John F. Wilkinson, chairman of the medical board. Both the chairman and the opener referred to the very great advances which have been made in medical photography in recent years. There was now far less tendency to photograph "very large lumps," and the camera was becoming an instrument of everyday use in most branches of medicine and surgery. Yet in an age of specialization Mr. Newell reminded his audience that it was still "the man behind" that counted, and he said that the material exhibited was eloquent proof of this.

The exhibition included 107 mounts (33 from overseas) and 93 colour transparencies (22 from overseas). One motion-picture from Switzerland was also accepted. Probably the most striking feature of the whole was the absence of the over-enlarged prints of rarities which were a feature of earlier collections, and the large number of composite mounts bearing photographs, radiographs, micrographs, and charts, designed to present a complete picture to the student. In this manner St. Bartholomew's Hospital presented the fitting of a hollow acrylic obturator after maxillary excision, Manchester a keyed diagram technique for the annotation of photographs of surgical operations, and the Postgraduate Medical School of London a very complete pictorial account of the repair of a popliteal aneurysm. From Professor Olivecrona's clinic in Stockholm came a pair of mounts illustrating the extirpation of a meningioma.

Several specialized techniques were covered; infra-red photography was more widely and more intelligently used; ophthalmic photography from the Institute of Ophthalmology, London, was of a very high order, and there were some good prints of metazoan parasites from the Instituto Portugues de Oncologia. The Royal Hospital for Sick Children, Glasgow, produced some of the best pictures of children we have seen. It is notable that these were made by electronic flash, using exposures of only a few microseconds. There is no doubt that this equipment is the answer to the wriggling infant.

The colour transparencies were good—probably as good as they could be. But there is still need for a process which will yield paper prints at a cost in money and time which the hospital and medical school departments can meet. The single example, from America, of the new "Flexichrome" process, which combines the skills of the photographer and the painter, attracted much interest.

The exhibition is without doubt the best collection of medical photographs to be shown to date, and the organizers are to be warmly congratulated.

CEREBRAL PALSY

The British Council for the Welfare of Spastics summoned a largely attended conference on the cerebral palsy problem on October 14. It was divided into medical and educational sessions. The chairmen were Mr. Fred Messer, M.P., and Mr. Paul S. Cadbury. A welcome to the conference was given by Professor Andrew Topping, dean of the London School of Hygiene and Tropical Medicine, where the meetings were held.

Paediatric Aspects

Professor NORMAN B. CAPON, of Liverpool, said that, although what might be called primary mental deficiency was not common in the spastic, he was afraid that the American views on this subject were too optimistic. He found 50% of his own patients to be children who were definitely retarded, though the retardation might in some measure be removed by treatment, especially when directed to enlarging the space-world of these people. The American figures also gave an incidence of cerebral palsy which he did not think was borne out by experience in this country. He believed the frequency in Great Britain to be between one and two per thousand children of school age. A figure of 1.9 had been mentioned in Sheffield, and of 1.0 in Birmingham, which would give Birmingham 150 spastic children of school age, whereas on the figures for America the number would be 600.

Cerebral paralysis was a problem *per se* and needed special consideration. Unfortunately, lay people thought treatment to be synonymous with cure. Many of these children could be treated in the sense of amelioration but not in the sense of cure. As for aetiology, in about two-thirds of the cases which came within his cognizance the cause was unknown; in the other third it was reasonable to associate it with difficult birth.

Aetiology of Cerebral Palsy

Mr. G. A. POLLOCK, of Edinburgh, said that it was reasonable to suppose that the first-born child was more likely than later children to be subject to head injury at birth. In 1948 in Scotland, out of 2,966 stillbirths registered, 118 were said to be due to birth injury, which would include cerebral injury, and, of these, 56 were first births and 21 second. Among white races cerebral palsy was more common than among negroid and Oriental peoples. The fact that negro babies at birth were smaller than white babies might have some connexion with this, as also the fact that Rh anomalies, with an incidence of about 15% in the white races, had an incidence of only 5% in the negro and 1% in the Oriental. For long it had been accepted that imperfect medical attention at birth was a cause, but an investigation in South Virginia showed that the incidence of cerebral palsy in a poor population where births were attended only by midwives or handy-women was no greater than after births in the highly skilled maternity hospital. In fairness to the doctor it should be said that not more than 10%, if as much, could be ascribed to bad obstetrics. In dealing with

post-natal causes he mentioned the effect of relatively minor injuries. He had recently seen two cases of spastic paraplegia, one following a slight blow from a schoolfellow, and the other from a fall of only two feet, apparently with no particular hurt at the time.

Dr. J. H. CROSLAND, of Croydon, said that there was no real comparison between the child with cerebral palsy and the handicapped child with poliomyelitis or tuberculosis of the hip. To rehabilitate these children they must be examined very carefully and by people expert in this field. The first necessity was screening before the child entered school. In England there was one institution (Queen Mary's, Carshalton) doing excellent work for these children under school age, and, he thought, four schools dealing with children of school age. For the child above school age until recently very little had been done, though there was now one school for young people from 14 to 20. Rehabilitation took a long time in these cases, perhaps as long as 10 or 15 years.

Dr. C. D. S. AGASSIZ (Carshalton) said that those who had to deal with handicapped children should emphasize not their handicap but their normality, and the children should be brought so far as possible into ordinary schools, the people who had to deal with them being warned to make allowance for movements or grimaces which might be disturbing.

Preparations and Appliances

URETHRAL SPHINCTER GUARD

Mr. A. WILFRID ADAMS, surgeon in charge of the Genito-urinary Department, Bristol Royal Hospital, writes: Internal surgery of the posterior urethra plays a useful part in urology; but incontinence is more apt to ensue than after open prostatectomy, which has somewhat retarded its popularity. An instrument to prevent one encroaching on the sphincter concerned is here described. It may appeal especially to younger surgeons embarking on the long training involved in the mastery of the transurethral technique.

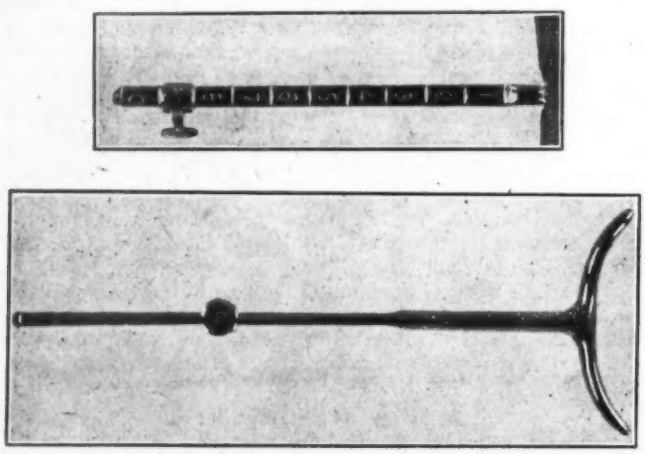


FIG. 1.—Sphincter guard seen from front and side.

It is of stainless steel and like a crutch, the concavity of which is pressed back in the right peno-scrotal fold and propped against the free edge of the subpubic arch. The stick of the crutch projects forwards parallel with the penis and is marked in centimetres. In taking measurements a fixed point on the external part of the resectoscope is chosen. I find the vulcanite flange, where the sheath joins the working part of the resectoscope, best (see diagram). The figure opposite it on the scale is recorded with the instrument in three positions—namely, viewing (*a*) the floor of bladder, (*b*) the urethral verge, (*c*) the verumontanum. The last is the vital reading. A typical series would be 3, 5, and 8 cm. Elongation of the posterior urethra is indicated by the distance between (*b*) and (*c*). My late registrar—Mr. F. R. Hurford—kindly gave me the idea of a sliding marker. It is fixed by a screw, which is visible even with a subdued light in the theatre, and best set opposite the verumontanum. This anatomical landmark rises from the urethral floor just proximal to the sphincter, like a sentry forbidding the operator to trespass distal to this point.

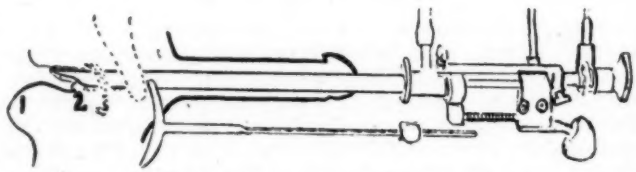


FIG. 2.—Diagrammatic sketch of instrument in use (1, prostate; 2, verumontanum).

When measuring, the assistant always presses the crutch firmly against the bone, which guarantees a constant base-line when distances of the resectoscope are being checked by it.

After the initial record is taken the operation proceeds. As the accumulation of cuttings interferes with the proceedings, the sheath is pushed back to the shortest of the three measurements—that is, 3 cm.; this brings the open end to the easiest position for evacuation of the fragments. When completing the excavation near the apex of the prostate one approaches danger and the sphincter guard chiefly comes into play. It is of special service where the urethra is spacious—for then the instrument can easily slip out of the safe range—and again in the short posterior urethra of the fibrous bladder-neck or the neurogenic bladder. A stunted or damaged verumontanum lacks definition and may become unrecognizable during operation. The guard can be kept in position as long as desired and does not interfere with the action of the resectoscope.

I am grateful to the Genito-Urinary Manufacturing Co., Limited, for making the tool, and to Mr. Christmas, instrument technician at this hospital, for the prototype of the device.

Reports of Societies

MEDICAL EDUCATION

THE HEADMASTER OF ETON AND SIR HENRY COHEN ON THE MEDICAL CURRICULUM

At a meeting of the Section of Medicine of the Royal Society of Medicine on October 24 the subject of discussion was "Medical Education." Dr. C. E. LAKIN was in the chair.

The First M.B.

Dr. R. BIRLEY (Headmaster of Eton College) devoted his remarks in opening the discussion to the First M.B. examination, which he said had a great influence on secondary education in this country. It was to headmasters one of their most difficult and tiresome problems. Whenever three headmasters were gathered together it was on the cards that they were discussing the First M.B. He himself was in entire agreement with the B.M.A. report "The Training of the Doctor," except that he thought the report a little too optimistic, or not sufficiently alarming. It frequently happened that an intending medical student received little if any instruction in general cultural subjects after 15 or 16; the whole time was devoted to physics, chemistry, and biology with a view to passing an examination which would exempt him from the First M.B. This was educationally unsound and indefensible.

Some significant figures were given in the *Lancet** about a year ago. It was stated that of 485 external candidates for the London First M.B. in July, 1948, only 62 (13%) passed. There was something wrong, to his mind, with an examination in which only 13% passed, unless it was a strictly competitive

Lancet*, 1949, **2, 529.

examination as for a college fellowship. Either the examination was unsatisfactory or a great many people were going in for it who ought not to be doing so. At University College, London, students might be accepted conditionally for the second examination on the consideration of their school record, a special examination, and an interview—exactly the right three-pronged fork on which to catch people. In 1948, 41 were accepted on those terms—a selection of one in seven—but of those 41, 18 subsequently failed in the First M.B. These were selected people, and yet nearly half of them failed to pass. It seemed to throw some doubt on the suitability of that examination.

The First M.B. was originally a university examination, taken by people after they got to the university. In special cases it was found useful to start on it at school, and the situation gradually and inexorably developed so that before the war it was pretty well established that in order to read medicine at a university the boy had to pass three out of four parts of the First M.B. before he went up. At Cambridge there was in some colleges more or less a demand, and in others the expression of a preference, that a boy should take all four parts before he went up. This examination was being quietly but remorselessly pushed along the shelf so that it was becoming the business of the schools and not of the universities. All this led to a very restricted amount of education at the schools and not to the type of education wanted for the future doctor. It tended to restrict the instruction in any other subjects than those definitely needed for this examination. At Eton there was an admirable arrangement for extra studies—three periods a week in any subject of choice, from archaeology to Russian. But from the point of view of the First M.B. it was a fantastic arrangement. He supposed that from that point of view they ought to stop this sort of thing, but it would be very unfortunate if they did.

The trouble was, of course, that more was demanded of the students than before. How was this to be got out of them—or put into them? A certain amount could be done by making them work harder. Was the boy to spend longer on his education to be a doctor because more was demanded of him, or was he to spend about the same time and start his specialized education rather earlier? Economic pressure in favour of the second solution would be very strong, particularly in view of the two years of military service, and it would not be of the least use for headmasters to make protests on the matter. It would need a decision either that less was demanded at the earlier stage or that longer was taken over it.

While in Germany he had had to face this problem in an acute form. There was intense pressure on the part of students to get through as quickly as possible, and at the same time there was an interest in the whole problem of general education. At one of the greatest of the technical high schools in Germany, that of Berlin-Charlottenburg, there was a strong party which felt it absolutely essential to broaden the curriculum and give the students "general studies" as they called them. It entailed a year's longer study, and he and many other people thought the students would not take it, but such was the enthusiasm and so strong the feeling that this was what they must do, that the students themselves were the strongest supporters of it. It was carried through with great sacrifices; in fact it was started during the hideous difficulties of the Berlin blockade.

So far as the public schools were concerned, said Dr. Birley in conclusion, they could do little or nothing of any use until the question of the First M.B. was tackled. However much individuals amongst them might insist on retaining certain general cultural subjects, the economic pressure would be so strong that it seemed likely that specialization would begin at too early an age and be too intense as it went along. That was the problem he left with medical educationists.

The Aims of the Medical Curriculum

Sir HENRY COHEN, chairman of the Special Committee of the B.M.A. which issued the recent report on "The Training of the General Practitioner," began by saying that in many discussions on medical education the sentiment emerged that the student should be encouraged to become a research worker or should have the rather dubious ambition of becoming a teacher of medicine, and that the medical curriculum should provide for these eventualities. He thought that those considerations should be put on one side in the knowledge that the student who showed an aptitude for research or for teaching would receive the direct individual encouragement of his teacher. The medical curriculum to-day was still fitted into the provisions of the Medical Act, 1886, under which the standard of proficiency which the student had to show in his final examination was to be such as "sufficiently to guarantee the possession of the knowledge and skill requisite for the efficient practice of medicine, surgery, and midwifery."

The curriculum in 1886 was probably adequate for this purpose. But in 1886 bacteriology was only at its beginning; epidemiology was concerned mainly with typhoid and typhus, cholera, and smallpox; serology and chemotherapy were unknown; hormones and vitamins were undiscovered, and diagnostic instruments mostly rather primitive.

It was the view of the committee over which he had presided that the aims of the medical curriculum should be reconsidered. The curriculum should aim at showing students what were the scope and potentialities of medicine and what were the duties and responsibilities of its practitioners. It should aim to equip the student, not with a mass of factual knowledge, but with sound basic principles. He should have not only competence in certain indispensable techniques but, as the result of his training, an intellectual resourcefulness and initiative in the handling of unusual and unexpected situations. The question of whether he was to practise in a specialty or to engage in general practice came later.

He believed that the general structure of the curriculum which had existed for more than half a century should be retained. There should still be premedical, preclinical, and clinical studies, though he disliked the term "preclinical," and thought there should be continuity between the so-called preclinical and clinical studies. He hoped it would be emphasized time and time again during the premedical period that chemistry, physics, and biology were instruments of medicine and would provide the answers to medical problems only in terms of chemistry, physics, and biology, and that there were other means of regarding medical problems. The instruction in the preclinical and clinical period should include not only the normal structure and function of the body, but the normal psychology of the patient and the recognition that he was a member of a family and of a society. During the last decade or so there had been an increasing appreciation of one important conception in medicine, namely, that diseases as defined by Sydenham, specific entities with their pathognomic signs, were merely conveniences for description, and that in fact disease was essentially a matter of deviation from the normal.

"During his clinical period the student must be enlightened to recognize that diabetes mellitus, for example, is not a disease but a problem in carbohydrate metabolism which he first encountered in his physiology and biochemistry, and that heart-block is not an entity but a disturbance of function which he can appreciate only if he remembers his physiology."

Fundamental Principles in Medicine

Sir Henry Cohen went on to say that he believed there were fundamental principles in medicine which could be taught to the student and which had their application in all fields of study, and if he were challenged he could mention many of them. There was, for example, the general principle that the intensity of symptoms was directly proportional to the range of pathological change. Whether they were dealing with an anaemia which developed rapidly, and therefore gave rise to significant symptoms, or slowly, so that it might go unsuspected for months, whether they were dealing with a cerebral tumour of rapid growth or slow growth, the same principle applied. The student throughout his training should have a holistic outlook.

The curriculum must be designed with sufficient flexibility to ensure that it could be modified according to the needs of student and teacher and the demands of growing knowledge. There must be periodic revisions and revaluations of content. The trouble in the past had been that in the endeavour to satisfy the 1886 Act any new accession of knowledge had been pushed into the curriculum, making it a patchwork quilt instead of a texture of clear design. Again, he thought they were still too hidebound in individual departments. There was still too great an autonomy of the departments of medicine and surgery in relation to each other and of the preclinical departments in relation to the clinical.

Dr. Birley had strongly emphasized the humanistic outlook. Sir Henry Cohen believed that there might be a more successful approximation between medical and general education if the historical approach to medical problems were adopted. This would enable the present to be interpreted in terms of the past and would emphasize that medicine was not a static body of knowledge but for ever changing. Students also should be encouraged to question, to discuss what was and what was not reasonably to be accepted from authority. Someone had said that the first commandment should be "Distrust thy father and thy mother." Finally, the teacher must seek intellectual honesty; there was a real danger in medical teaching of overlooking the significance of this. In medical teaching above all there was a risk that the teacher should regard himself as omniscient. He must be prepared to shed some of his omniscience in the interests of intellectual honesty.

Sir Henry Cohen summed up in these terms:

"The process of medical education is, in my view, to prevent the practitioner from being taken by surprise. To the badly trained doctor every problem is solved by rule of thumb or else it remains a mystery. He does not anticipate it, he cannot explain it, and if he solves it he does so by instinct or by chance. But the well-trained doctor knows in advance the difficulties with which he is likely to be confronted; some of them he anticipates, for others he will find an explanation, and perhaps reverse a probable explanation."

Of the need for general cultural education, he said that in one sense professional education was wider and in another sense narrower than general education. General education equipped a man for the business of life; professional education prepared him for his work and calling. If medical education lost sight of the need for equipping practitioners for the business of life itself it had failed. It should produce not merely competent general practitioners but men whose equipment for life itself—its enjoyment and service in it—had been enriched and strengthened by the training they had received in the medical schools.

Tuition in General Practice

Dr. G. O. BARBER said that the young practitioner on entering general practice found a very different situation from that to which he had been accustomed in hospital. For one thing, he did not have the facilities at his command which the hospital had provided, and for another, he was expected, perhaps for the first time, to deal with the whole individual and his environment. There were two ways of looking after the health of the community: one was to have medical knowledge and facilities concentrated in large efficient hospitals, to which the patient would be directed by outside "scouts"; and the other was the traditional method of caring for the patient so far as possible in his home surroundings. For his own part he believed in the traditional method, and that the general practitioner, living in community with his patients, was an integral figure in medicine. But how should general practice be taught? In the report of Sir Henry Cohen's Committee a year under the guidance of an experienced general practitioner was recommended—in a sense a return to the old apprenticeship system, which would in time bear fruit.

He proceeded to give an account of a plan for instructing general practitioners, based upon one of the London hospitals. Informal talks were given on the kind of problems which the young practitioner would encounter. The common ailments which would occupy 90% of the general practitioner's time—the chronic cases of asthma and rheumatism and so forth—were described. He himself was accustomed to take his doctor's bag and give a homely, anecdotal talk about its contents. The students also went down and saw general practice in action. At the general practitioner's surgery they met the people who were his helpers—his secretary, the district nurse, the health visitor, perhaps the medical officer of health, the people with whom he was associated every day. With the help of the British Medical Association a filmstrip was available to illustrate work in general practice which could not very well be shown directly. Individual students came and occupied for two or three days a room at the general practitioner's house—a room ordinarily reserved for an assistant or locumtenent—and accompanied the practitioner on his rounds. It was not only the student who learned from such an association; the general practitioner himself learned as much or more.

Dr. FFRANGCON ROBERTS said that it was a matter of general wonder how students could possibly keep pace with the increase of knowledge. He was sometimes afraid that they got a knowledge of the facts without the proper grounding in principles. Facts were easily acquired, but their wider implications were not always absorbed. Dr. J. C. WATERLOW said that students in a year accumulated an extraordinary number of facts, and yet often failed in their examinations. What they needed was to be taught to put together the facts they already knew. He added that he had suffered under the teaching of psychology in the preclinical period. He suggested that study in anthropology, as, for example, the work of Westermarck, or nowadays Margaret Mead, might be taken during that period. Professor W. BURRIDGE complained that all committees on the curriculum seemed to add something to the burden, never to take anything away. It was a mistake to let the professors in any particular branch of medicine decide what that part of the curriculum was to contain; they were always unwilling to drop anything.

Dr. BIRLEY, in reply, said that there was a real danger of a boy whilst still at school spending too much time on the physics, chemistry, and biology which he had to do for the First M.B. Recently he saw 70 boys individually in connexion with a particular matter and asked each of them the question. "Can you ever remember having looked at anything in a chemistry textbook and wondering whether it was not true?" Three of them said they thought perhaps they had; the other 67 were sure that no such idea had ever crossed their minds. On the subject of general studies he recalled a remark by a professor of pedagogy at Bonn: "I sometimes wonder whether students need these general studies, but I am sure we must all agree that the professors do."

Sir HENRY COHEN said that he believed the doctor's work would be well served if the patients with whom he had to deal had some knowledge of scientific method and could eliminate personal prejudices concerning certain methods of treatment. After all, their patients included public men and others who were able men in different walks of life, yet often they had less appreciation of scientific method and the evaluation of evidence than the man in the street. It was not for entirely unselfish reasons that his committee had urged that general culture be provided in the schools; it was important not only that the medical student of the future should have a general cultural background but that, in this increasingly scientific age, such a background should be afforded to the general community so that they might have a scientific training and be accustomed to the evaluation of data. He did not share Dr. Waterlow's apprehension about the teaching of psychology in the preclinical years. He himself took psychology in the faculty of arts and it was of great value to him. At Liverpool the students were instructed in psychology not by a professional psychiatrist, but by a professor of philosophy. He agreed that it might be a good thing to have a committee which would delete from the curriculum instead of adding to it, and his committee took some steps in that direction, but it incurred the wrath of the anatomists when it insisted that enough of the kind of anatomy it envisaged might be learned in four terms instead of five.

DIAGNOSIS AND TREATMENT OF PLACENTA PRAEVIA

A discussion on new ideas about the diagnosis and treatment of placenta praevia took place in the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on October 20. Mr. V. B. GREEN-ARMYTAGE presided.

Clinical Signs and X-ray Appearances

Mr. JOHN STALLWORTHY said that the problems peculiar to posterior placenta praevia had been studied at Oxford for the last 10 years. During the last three and a half years Dr. Frank Reid, of the Department of Radiology of Oxford United Hospitals, had been associated with the work. Dr. Reid had been interested in soft-tissue radiography. His work was based on two main principles: the use of an aluminium filter to obtain clear definition of the placenta, and the study of the effect of gravity in different positions of the patient. Mr. Stallworthy showed a number of drawings from *x*-ray films demonstrating the site of the placenta. While he acknowledged the value of radiological help, it must be seen in the right perspective, and clinical methods had first place.

Safe vaginal delivery with placenta praevia depended on adequate control of haemorrhage by the presenting part. The clinical importance of a posterior placenta was that it might result in cephalopelvic disproportion preventing foetal engagement. It was also commonly associated with low insertion of the cord. This could be detected clinically in time to save the baby and was an indication for caesarean section.

The characteristic clinical sign of posterior placenta praevia was forward displacement of the presenting part, which could be confirmed radiologically. He held that the relationship of the presenting part to the brim was more important than the position of the placenta in relation to the os. If the presenting part engaged, vaginal delivery should occur; if it would not engage, section was indicated. If the placenta praevia was on the anterior wall the chances that it would cause clinical trouble were much less. Radiology was a useful tool in the selection of cases for prospective treatment, and it could also exclude those cases of ante-partum haemorrhage thought to be due to placenta praevia but in which the placenta was shown radiologically to be normally situated. During the past 18 months at Oxford 25 patients admitted for suspected placenta praevia had been discharged after *x*-ray examination, undelivered and without vaginal examination, and in none had their subsequent clinical course challenged the wisdom of such action. The special value of this procedure was in the saving of hospital beds.

Mr. Stallworthy gave details of 250 patients with placenta praevia treated between 1941 and the present date. There was one maternal death (due to nasopharyngeal carcinoma). The incidence of caesarean section was 40%. Foetal wastage was 18%, but in the last 100 cases it had been reduced to 13.7%. The aim was to have no maternal deaths from haemorrhage and a foetal wastage of 10% or less. This ideal could be achieved, but only if the problems peculiar to posterior placenta praevia were fully appreciated.

Limitations of Radiographic Assistance

Mr. C. H. G. MACAFEE reported on 341 cases of ante-partum haemorrhage admitted to the Royal Maternity Hospital, Belfast, during the period 1944–8. Of this number 108 were cases of placenta praevia; there was spontaneous or forceps delivery in 50 of these, and caesarean section was done in 58. There was one maternal death, due to an incompatible blood transfusion. The foetal wastage (uncorrected figure) was 9 stillbirths and 6 neonatal deaths, a total of 15 (14%). In 55 cases of placenta praevia treated expectantly for at least one week in hospital, caesarean section was carried out in 33 (60%), and among these there were 6 stillbirths and neonatal deaths, a death rate of 10.8%.

It was possible by abdominal palpation to suspect placenta praevia, and relatively easy to decide whether the placenta lay in front or behind. In the majority of cases the placenta was situated posteriorly. In most of the cases of fourth-degree placenta praevia there was very extensive posterior attachment to the upper uterine segment. Referring to the fact that there had been only 55 cases of placenta praevia treated expectantly in his hospital in nearly five years, he suggested that 11 patients a year would not tax the resources of any obstetric department. He was convinced that none of these admissions could have been avoided by soft-tissue radiography. Where placenta praevia was already suspected before or after haemorrhage had occurred, diagnosis by clinical methods, excluding vaginal examination, could be as accurate as, as well as more generally applicable than, soft-tissue radiography. Radiographic assistance should be sought only to confirm what was already suspected, and treatment should be guided largely by clinical findings and judgment. The admission of the cases he had reported depended on clinical findings alone. Radiography had its importance in deciding the treatment of patients with haemorrhage of doubtful origin.

Reasons for Improved Results

Professor F. J. BROWNE said that to explain the good results which the last two speakers had reported certain factors should not be forgotten, namely, the greater use of transfusion, the use of penicillin and sulphonamides, the increased frequency of caesarean section, and the fact—for which teachers in the undergraduate schools were to be thanked—that doctors were sending their cases earlier to hospital. There could be no doubt about the importance of the posterior placenta or of the danger of low insertion of the cord. The important thing for the clinician to remember was that the foetal heart should be watched in all cases; if it became irregular when vaginal delivery was pending it showed that the cord was being compressed and was an indication for caesarean section. The largest group of cases of ante-partum haemorrhage were those in which the cause was not known.

As to soft-tissue radiography, he had studied Dr. Reid's paper, but he noted that Dr. Reid was right in all his cases only when he made a negative diagnosis. He mentioned about 200 cases in which the diagnosis of "no placenta praevia" was confirmed. But, placenta praevia being the rare condition that it was (perhaps one in a thousand), Professor Browne rather fancied that, taking 200 cases at random, one would be pretty safe in saying, without an elaborate *x*-ray examination, that there was no placenta praevia. Of Reid's positive cases, numbering, he thought, 73, only in 50% was the diagnosis confirmed clinically, and if this happened in the Department of Radiology at Oxford, what was likely to happen in more benighted departments elsewhere?

Mr. Stallworthy had told them that if the head was sufficiently high and placenta praevia had been diagnosed by *x* rays, when the patient reached the 36th week he took her to the theatre and tried to push the head into the pelvis, and if the head did not go into the pelvis he did caesarean section. But if the head was high and the patient was not bleeding, why not leave her alone? Moreover, could they ever be sure about the 36th week? In his experience no patient was ever right in her dates. Why not allow her to go to term? As it was, one might get a premature baby, and "lose on the roundabouts what one had gained on the swings." The engagement of the head in the pelvis did not exclude placenta praevia. The classification of placenta praevia in four degrees had been challenged, but he was not persuaded that the degree did not matter; if there was complete placenta praevia the patient was far more liable to get severe haemorrhage.

Technique in Diagnosis

Mr. C. MCINTOSH MARSHALL contrasted the figures at Liverpool Maternity Hospital for the period 1926–34 with those for the period 1941–50. The total number of cases of placenta praevia during the earlier period was 306. The maternal deaths numbered 19 (multigravidae, 16; primigravidae, 3). Caesarean section was done in 57 cases. No maternal deaths followed caesarean section, but 11 of the deaths occurred after treatment by version, six after puncture of membranes or no treatment, and two after the use of Willett's forceps. In 1941–50, out of 250 cases, caesarean section was done in 176, version in 23, and

artificial rupture of membranes or normal delivery was effected in 51. Caesarean section was thus performed in 70% of the cases. The total foetal mortality was 18% ; the foetal mortality of the cases submitted to caesarean section was 14%. Of the patients on whom caesarean section was performed because of suspected placenta praevia, 65% had no digital examination per os.

By and large, the practice of the hospital had come to follow what he himself had laid down in 1939 as the practice of a reputable hospital. What he had urged was that placenta praevia could be diagnosed by the history of the case and abdominal palpation. He had strongly advised that the finger be kept out of the os. What he had heard that evening from Mr. Stallworthy and Mr. Macafee had seemed to justify his emphasis on the importance of clinical signs. All that Mr. Stallworthy had said about the importance of the posterior placenta was extremely important. The anterior-wall placenta was not so dangerous. Mr. McIntosh Marshall gave an account of the practice at his hospital.

Claims for Caesarean Section

Dr. LINTON SNAITH gave the results at Newcastle-upon-Tyne General Hospital over the last six years. There had been 90 cases of placenta praevia. The general line of treatment was conservative. His own preference was for caesarean section unless the head was engaged or could be made so. Maternal mortality had been *nil*. Of 91 babies born (one set of twins), 28 had died, but the corrected foetal loss was 14% ; he was excluding cases which were premature (below 32 weeks), deformed foetuses, and those in which no foetal heart was heard on admission. In the other cases there was one death for which he thought the anaesthetic was responsible, and two due to abnormalities unconnected with placenta praevia. Caesarean section was performed in 65 cases (70%), the operation being lower segment in 48 out of the 65. He still thought that caesarean section was a desirable method of treatment. He was unashamedly in favour of not examining vaginally. The only cases he examined vaginally were those in which the patient probably had not a placenta praevia. The diagnosis could be made by history and abdominal palpation. It was possible that unnecessary caesarean sections might occasionally be carried out, but the risk of this in perhaps one case out of a hundred was outweighed by the saving of heavy bleeding ; and, after all, one often saved the foetus, which would otherwise have perished from ante-partum haemorrhage.

Dr. NINIAN FALKINER looked upon placenta praevia as an ectopic pregnancy. The pathology of the condition had not been alluded to sufficiently. One of the things that had been impressed upon him was the extraordinary efficiency of the lower segment in controlling post-partum loss in placenta praevia. Professor Browne had seemed to think that the lower segment was inefficient, but he thought it did its job very well indeed. He was in full agreement with Mr. McIntosh Marshall in his ideas about the diagnosis of placenta praevia, and he thought the last speaker had summed it up very well when he said that he carried out vaginal examination only when he thought there was no placenta praevia. His caesarean section rate was 44%.

Summing up the Discussion

In some further discussion Professor CHASSAR MOIR referred to the change in attitude towards caesarean section in this country. During the present discussion rather scant justice had been done to radiology, and he spoke in high terms of the work of Dr. Reid at Oxford. Mr. G. J. SOPHIAN said that no speaker had touched on the mechanics of the uterus. It had been shown in America that the lower uterine segment during labour was in a condition of tonic contraction with each labour pain. He thought this was of extreme significance from the point of view of the lower segment being considered as a contributory cause of foetal death in placenta praevia.

Sir WILLIAM GILLIATT said that the thing that had struck him most was the suggestion that radiology provided an additional means of accurate diagnosis of placenta praevia. That was the outstanding feature of the discussion. Radiology had come to the help of obstetrics in many ways. In contracted pelvis no one would think of neglecting it. Mr. Stallworthy had properly emphasized that he did not, because of the availability of a radiologist, neglect clinical examination, but this additional help of radiological diagnosis was to be welcomed.

The openers, handicapped by the lateness of the hour (the meeting went on for nearly three hours), made brief replies. Mr. STALLWORTHY paid a tribute to the foresight of Mr. McIntosh Marshall. It was not the case, he said, that the results of radiological examination were merely of a negative character. The new ideas were justified in the unprecedented lowness of the maternal mortality and foetal wastage figures.

LIVERPOOL MEDICAL INSTITUTION

STUDENT HEALTH SERVICES

The second ordinary meeting of the 114th session of the Liverpool Medical Institution was held on October 19, with the president, Dr. DAVID JOHNSTON, in the chair.

Dr. R. W. PARNELL (Oxford) opened a discussion on "A Medical Service for Students." Dr. Parnell drew attention to the fact that the student health movement was world-wide, and that outside Britain and America there were known to be 58 university health services in 25 different countries ; routine chest radiographs were taken at 50, while at over two-thirds there was a general physical examination. In America there were 200 member institutions in the American Student Health Association, which had held annual meetings for more than 25 years. In Great Britain only four of the 17 universities now had no whole-time student health officer.

Industrial health services existed because there were advantages in making provision for a group of the population with common needs. It would be unfair to suggest there was no industry among 130,000 students in Great Britain. Health examinations were valuable in at least two ways. They were preventive, and they provided health records of a definite occupational group, from which its risks could be computed.

Dr. V. COTTON CORNWALL said that in a medical service for students the prevention and treatment of tuberculosis were very important factors. Dr. Nicholas Mallison's figures showed that about 0.2% of non-medical and about 1% of medical students were victims of this disease. Apart from preventive measures such as B.C.G. inoculation and serial radiographs and clinical examinations, steps should be taken to minimize the disabilities from which these students suffered. The idea of a post-cure rehabilitation centre of, say, 100 beds for the country was an excellent one, but would take time and money to organize. If, however, the regional boards and the universities would co-operate something could be done *at once* to improve matters. All students should be sent to one hospital in a region for treatment, and the faculties to which the students belonged should make themselves responsible for guiding their studies for as many hours as the physician in charge considered suitable.

Dr. R. W. BROOKFIELD drew attention to the fact that medical care was only one aspect of the much larger subject of student welfare. Catering arrangements, means of transport, and effective supervision of lodgings were of great importance for the well-being of the student and should be the responsibility of suitably equipped lay officers who could work in conjunction with the medical officer. In those universities where each student was under the supervision of a tutor, the latter could make most valuable contributions to the physical and mental health of those in his care by drawing the attention of the medical officer to suspected abnormalities and discussing appropriate remedies with him.

Dr. G. W. TAYLOR said that, in view of the frequency of anxiety states and other mental illnesses amongst university students, which the medical service had demonstrated, he would point out the usefulness of the regency system as operated in the Scottish universities. The regent—guide, philosopher, and friend of the student in times of trouble, and not necessarily a member of the medical faculty—was in a position to understand the mild anxiety state and give early help.

Correspondence

The B.M.A. War Memorial and Epsom College

SIR,—We disclaim at once any thought of questioning the absolute discretion of the British Medical Association in dealing with money it may collect for a war memorial. However, the correspondence in your columns instigated by the letter of Dr. J. B. Wrathall Rowe in the *Supplement* of August 12, page 89, shows that the aims and objects of Epsom College are less widely known to the medical profession than we should like them to be, and this prompts us to a brief explanation.

The College exists to provide a place where sons of medical men and women can get a first-class public school education strictly at cost price and where admission is open to all others at slightly higher cost, though it is the sons of medical men and women who have the first call.

The Royal Medical Foundation of Epsom College, whose accounts are kept separate from those of the College itself, collects from the medical profession and its friends funds wherewith to pay the College bursar the whole cost of education, board, and clothing for 50 sons of registered practitioners whose circumstances necessitate help of this kind: these are practically all orphans—and war orphans are considered to have a special claim. Many scholarships, exhibitions, and bursaries are also paid for by the Foundation, some held at the College itself, some at preparatory schools, and some at local grammar schools. Scholarships for girls at other schools are also paid for by the Foundation, and extra financial help for this aim is one of our most pressing needs. If the resources of the Foundation were greater (only a very small percentage of the profession at present subscribe) more and better scholarships could be provided and improved College buildings and class-rooms erected.

In brief, Sir, the College has been doing its best for 97 years, with very limited support from the profession, to carry out exactly what Dr. Rowe and other critics of the Council of the British Medical Association regard as the most worthy object of a war memorial. It seems clear to us that many members of the medical profession do not understand the position.—We are, etc.,

J. S. COTMAN,
Treasurer.

HAROLD SPITTA,
Chairman of the Council.

ERNEST GOODHART,
Vice-Chairman of the Council.

Epsom College, Surrey

Psychology and Science

SIR,—I am grateful to Sir Cyril Burt for his kind letter (*Journal*, October 21, p. 943) but cannot accept his strictures. It appears to me that the "proof" which he takes as indicative of science is merely successful prediction. If I may take a simple example, copper sulphate is believed to be composed of copper and sulphuric ions. If this is so, we predict that, if copper is dissolved in sulphuric acid, copper sulphate will be formed. Also if an electric current is passed through the solution the metal will be deposited and the acid formed at the respective poles. These predictions are found, in arranged conditions, to be true, and so the theory is "proved." If on some occasions zinc instead of copper were produced the theory would be disproved because the predictions were incorrect. Newton thought that light travelled in straight lines, and arranged conditions which, if his predictions were correct, would show that this was so. They apparently did, and he thought that he had proved his proposition. However, Einstein predicted that in certain conditions light would bend, the conditions were found, and light did bend. Newton's predictions were wrong and Einstein's correct on this occasion, so we say that Einstein's theory was proved.

The present difficulty regarding statistical proof in psychotherapy is that the mind is so subtle, so immeasurable, and treatment so slow to yield the large numbers of cases the statistician demands. Nevertheless a certain amount of statistical work, even in this branch of psychiatry, has been published. I am astonished, however, that Sir Cyril should suggest that there is insufficient statistical evidence regarding leucotomy. It is just here where innumerable papers, which surely Sir Cyril must have seen, all demonstrate that so many cases have been cured, so many relieved, and so many unchanged. Many of us are sceptical of these statistics and are inclined to say, "Tell me not in mournful numbers," since one sees so many of those who are "unchanged." Sounder statistics do seem to suggest that insulin and electric convulsions (in spite of the ignoramuses) are beneficial in suitable cases.

Everyone will agree with Sir Cyril that clinical experience should be combined with statistical comparisons, but surely it is time that someone uttered a protest against the domination of the statistician. I have not had time to confirm it, but from my general reading I think that many diseases were first described on what statisticians would regard as useless evidence: for example, I believe fragilitas ossium was described on two cases, Paget's disease of bone on half a dozen, and Huntington's chorea on a few more. Can anyone deny that the exact descriptions and beautiful water-colours made by such old physicians as Addison and Bright were any less "scientific" than the columns of figures which are poured out daily? Statistics are useless without the initial clinical observations, and it is here that the statistical investigation so often fails.

The word "ignoramus" was used originally because it was felt that one should be humble in one's ignorance and not denigrate the work of others which one might not understand. I have not the wide knowledge of Sir Cyril, so perhaps I feel differently, but when I am confronted with the marvellous complexity of the human body and see the incredible subtlety of the mind I feel that it is presumptuous to describe myself even as an ignoramus, although that term means accepting the blundering stupidities Sir Cyril associates with it.—I am, etc.,

London, W.1. CLIFFORD ALLEN.

SIR,—Dr. F. M. R. Walshe's criticisms of psychological medicine (August 12, p. 379; September 16, p. 677), and Sir Cyril Burt's suggestion that statistical criteria should be applied to its results (October 21, p. 943), are welcome. We need an audit of the high claims to authority made by some psychiatrists and well exemplified in Dr. Dillon's letter (October 21, p. 943). Dr. Dillon, taking the field like a man who regards himself as the hope of his side when the earlier batsmen have failed, makes what he calls a reasoned rebuttal of Dr. Walshe's theses. He then proceeds to an admission that psychology—i.e., psychiatry—has no unity of method or concept, giving no definition of it except that it is not what many medical psychologists believe. To this vague specialty he claims to add history as a species.

We must remember H. A. L. Fisher said he found in history "no plot, rhythm, or predetermined pattern," that G. M. Trevelyan claims to see of the future "no more than others," and that A. J. Toynbee warns explicitly against the "error of applying to historical thought, which is a study of living creatures, a scientific method devised for the study of inanimate nature." It is clear that Dr. Dillon is making very high claims indeed, including an ability to collate and manipulate the processes of the mind according to "the true scientific method." That some psychiatrists have persuaded themselves they possess this power seems undoubted, and they are ready to assume control of patients' lives to an extraordinary degree, even overriding rules of medical conduct. This control extends, as Dr. Walshe has emphasized, into the administration of the law: and yet, as Sir Cyril Burt points out, very little established basis exists for current psychiatric practices. This basis may not be of the same nature as that of the inorganic sciences, but therapeutic results will be equally susceptible of statistical analysis, and there is real need to estimate them as carefully and impartially as the latest cancer cure.—I am, etc.,

Hove, Sussex. W. A. BOURNE.

Accidents in the X-ray Room

SIR,—I was interested in your comments (October 7, p. 827), dealing with the cases of tellurium poisoning which Colonel (now Professor) Tunbridge, Dr. Martin, and I wrote up in the *British Journal of Industrial Medicine* in 1944. The sodium tellurite was obtained from a bottle in my pathological laboratory, and was mislabelled at its source of supply. This was proved eventually by proceedings in which I believe both the dependants of the men who died as the result of this retrograde pyelography were compensated, the bottle at the time being labelled sodium iodide. This fact did not come to our notice, however, till months later, as the cases occurred on active service, and there was a gap between the occurrence of the cases in North-west Europe, and the settlement months later in the United Kingdom.

The barium carbonate poisoning cases mentioned in your article were also most interesting. I well remember in West Africa in 1942 being consulted in a series of acute food-poisoning cases which affected officers and other ranks in R.A.S.C. messes. These were most disturbing cases, and the Army hygiene people finally tracked it down to contaminated flour. It appeared there had been a large import of barium carbonate for rat-poisoning purposes, the rat poison consisting of barium carbonate one part and oatmeal three parts. It was decided that somehow at the docks a sack of barium carbonate had burst and the white amorphous powder had been mixed up with some flour by mistake. It was coincidental that the persons to be involved were the suppliers of the flour to the Army locally —i.e., the R.A.S.C. The hygiene people were very effective in dealing with this matter, and the only African involved was the cook, who stole some of the pastry from the officers' mess, with results that were as startling as those that affected those he cooked for. Very promptly all bread and flour were withdrawn from military establishments and no further cases occurred.

The symptoms were of sudden onset, consisting of sudden collapse, diplopia, dysphagia, dryness of the throat, with vomiting in some cases, but no diarrhoea. The patients were for the most part apyrexial, and the whole business was most puzzling. No fatalities occurred in these series of cases, which amounted to somewhere about twenty persons affected.—I am, etc.,

Bromley, Kent. JOHN KEALL.

War on Leeches

SIR,—Two of your recent correspondents (*Journal*, September 16, p. 679; and October 14, p. 891) have written concerning the tenacity of leeches to the nasopharynx. In Malaya during the past two years there have been deep-penetration patrols pushing increasingly further into the jungle for increasingly longer periods, and, as it fell to my lot to push with them, I found a tenacity of leeches not only to the mucous membrane of the nasopharynx but of many other places.

The site which was most alarming to the host and from which I experienced the greatest difficulty in removing a leech was the penile urethra. Neither I nor the two hosts concerned had the courage to wait until the leech became engorged and would release its jaws, and then see if it could be passed upon micturition. It might have become too swollen.

Weight of equipment carried was the overriding factor in that terrain, and to be burdened with an onerous collection of ethyl chloride sprays, which leeches loathe, cocaine solutions, bottles of ether, or other "leech-grip releasers" meant unnecessary exhaustion and bulk to the point of interference with patrol mobility. Hence I removed three leeches respectively from the anterior end of the inferior concha of the left nostril, the buccal wall, and the tonsillar fossa on the right by gripping them with a haemostat and pressing a burning cigarette-end held in another haemostat against them. The ensuing heparin-released haemorrhage was controlled by the application of a small piece of alum.

The first leech in the urethra could be seen about ¼ in. (0.6 cm.) from the meatus upon dilatation with haemostat blades. It had lodged there during the night, which the host had spent on the jungle floor. He felt discomfort upon awakening, and upon micturition found an interrupted stream and a frank haematuria. When I approached him with a burning cigarette-end held in a haemostat he confided that, although he was alarmed because of the site of the leech, he was even more alarmed at the prospect indicated by my approach.

It had been noticed previously that leeches did not lodge on the skin areas soaked in dimethyl phthalate, the mosquito repellent, and the negritos as a counter-measure smeared themselves with coconut oil, although this appeared to be more of a mechanical disadvantage to the sucker of the leech. Salt, although it disturbed the leech's personal osmotic balance, would in the concentration required be somewhat traumatic to the damaged urethra, which was also true of dimethyl phthalate, but to a lesser degree. I retracted the meatus, gripped the end of the leech with a haemostat, and poured a few drops of dimethyl phthalate on the leech. It disengaged its jaws and was removed. Alum was not applied and bleeding occurred for about an hour.

A similar case occurred two months later in May of this year, and the leech was removed in the same way. After these two incidents some of the men decided that prevention was a far better thing, and in particularly heavily infected areas wore condoms when they slept at night.—I am, etc.,

Workington. R. IAN K. BLYTH, Lately Medical Officer, Army Jungle Warfare Experimental and Training Centre.

Leech in the Nasopharynx

SIR,—I was interested to read (*Journal*, September 16, p. 679) an account of a case of haematemesis due to a leech finding its way into the nasopharynx. This brought back to mind that while stationed in Lansdowne, in the United Provinces of India, during the winter of 1937–8, I had a similar case—that is, in so far as a leech entered the nasopharynx of a Garhwali sepoy. I recall trying unsuccessfully to remove the leech with forceps. It was not until I sprayed into the nose a solution of adrenaline hydrochloride 1 in 1.000 that I succeeded in removing the leech, which was over 2 in. (5 cm.) in length. I suppose the adrenaline had a similar effect to the cocaine in the earlier case. —I am, etc.,

Prince Edward Island. KENNETH I. E. MACLEOD.

SIR,—On reading the note by Dr. A. Cameron on haematemesis from leeches in Palestine and Jordan (September 16, p. 679) I was reminded of three such cases which I encountered in Nazareth during the summer months of 1946 and 1947. However, in all three the presenting symptom was gradually increasing hoarseness accompanied by occasional expectoration of blood-tinged sputum. Examination of the pharynx revealed the leech to be attached to the epiglottis in two cases and the posterior wall of the pharynx in the third. They were removed by cocainizing the throat and extracting with forceps, something which I might say is easier said than done.—I am, etc.,

Norwegian Hospital, Brooklyn, N.Y. RENDEL LEVONIAN.

Insulin and E.C.T. for Rheumatoid Arthritis

SIR,—We read with great interest the article on this subject by Dr. G. D. Kersley *et al.* (*Journal*, October 14, p. 855). These authors note that after E.C.T. there was no significant drop in the number of circulating eosinophils five hours after treatment, "constancy of the fall of eosinophils with insulin, but absence of change with E.C.T." They suggest that the action of insulin hypoglycaemia may be the result of stimulation of the adrenal cortex, or of the synergic action of insulin and endogenous cortisone.

If Dr. Kersley and his associates are using the term "a significant drop in the eosinophil count" in the sense suggested by G. W. Thorn, P. H. Forsham, F. T. G. Prunty, and A. G. Hills (*J. Amer. med. Ass.*, 1948, **137**, 1005) our results in a greater number of estimations (like those of M. D. Altschule, B. H. Parkhurst, and K. J. Tillotson, *J. clin. Endocrinol.*, 1949, **9**, 440) have not led us to the same conclusion. Thorn *et al.* consider that a fall greater than 50% is indicative of a satisfactory adrenocortical response, when the second

eosinophil count is made four hours after A.C.T.H. administration. We have observed a fall of this magnitude in patients treated with electroconvulsion, the fall being most frequently observed and greatest after the first treatment. It should, however, be noted that our patients were not suffering from rheumatoid arthritis but from some form of mental illness, and that premedication was limited to small doses of "amytal," no D-tubocurarine being administered. Details of our findings will be published in due course.

We agree with Dr. Kersley that a marked fall in circulating eosinophils follows insulin hypoglycaemia, and we have noted that the frequency and magnitude of this fall were usually greater with higher dosage. In all cases in which coma or even sopor was induced for therapeutic purposes a "significant" depression in the post-treatment count was met with. We also agree that the eosinophil count of various individuals varies within very wide limits, but so does the count of the same individual on different days, and it is therefore unlikely that the true depression of the number of circulating eosinophils can be estimated more accurately by comparison with the count taken on any one of the no-treatment days. All that can be claimed is that the afternoon count on a no-treatment day is usually higher than the morning count of the same patient on that particular day. On the evidence available to us we do not feel inclined to conclude that the action of insulin differs from that of E.C.T. in that the former, but not the latter, may stimulate adrenocortical activity.—We are, etc.,

F. Mackenzie Shattock.
Arlesey, Beds. Lorna P. Micklem.

Sir,—I have read with interest almost amounting to amazement the article entitled "Clinical Assessment of Rapidly Acting Agents in Rheumatoid Arthritis" (*Journal*, October 7, p. 810). The "assessment" of the value of the substance used depended on one injection and an examination one hour and again one week after it. Will anyone in the world accept such an experiment as being of any value whatsoever? Would any of our colleagues take a series of cases of auricular fibrillation and test the efficacy of digitalis by one dose, "assessing" its effects one hour and one week later? Was any series of "assessments" made in a similar manner on penicillin, or the sulphonamides, or insulin? Until the material is used correctly we shall continue to see such "assessments" and adverse reports appearing in the specialized press.—I am, etc.,

Derby. R. Latham Brown.

Pernicious Anaemia and Gastric Carcinoma

Sir,—In the correspondence occasioned by our report (August 12, p. 405) Dr. D. Jennings (September 2, p. 575) maintains that pernicious anaemia and gastric carcinoma arise together. We are unable to find anything to support this interesting hypothesis in our series. On the contrary (cf. our Table VI), many gastric carcinomata arose several (on the average eight) years after P.A. was diagnosed, and only two out of fifteen cases were diagnosed within one year of the discovery of P.A.

Jennings's theory that our series might be selected, so that some patients were not admitted to a P.A. clinic until gastric carcinoma had developed, is a source of error which may be disregarded in our series. In all 15 cases of gastric carcinoma, P.A. was diagnosed primarily in the Bispebjerg Hospital.

In the same number of the *Journal* it is emphasized by Dr. J. F. Wilkinson (September 2, p. 576) that the mortality in our series is 38%, as compared with only 20% in his own larger series. This difference may be due to the fact that our patients are older than Wilkinson's. As appears from our diagrams, there was no excessive mortality worth mentioning among the P.A. patients. Wilkinson does not mention whether an excessive mortality was found among his patients.

Our series is smaller than Wilkinson's, but by reporting the age and sex distribution among our patients and the length of the follow-up period we have shown, by means of a comparison with a similar population without P.A., that the incidence of gastric carcinoma is significantly increased among the P.A. series. Such a comparison, which is of decisive importance to this entire question, has not been performed by Wilkinson. In our opinion percentages are of doubtful value in assessing the incidence of carcinoma in a series of patients whose sex, age, and follow-up period are unknown.—We are, etc.,

Copenhagen, Denmark. Johannes Mosbech.
Aage Videbaek.

Emergency Leucotomy

Sir,—Dr. M. O'C. Drury's memorandum (September 9, p. 609) makes strong demands on our credulity. After some two years' treatment and observation of a typical case of anorexia nervosa, during which time a transorbital leucotomy was performed, a radiograph of the chest was taken and showed "a cavity below the right clavicle . . . doubtless tuberculous." Here we should like to have a little more evidence before admitting the "doubtless." If there was active tuberculosis with cavitation, one would expect some sputum. We are not told whether there was any; nor, if sputum was obtainable, whether tubercle bacilli were found. Presumably the radiograph was considered to be sufficient evidence in itself of *active* tuberculosis without any need for further careful clinical examination. Without, however, troubling about this, the conclusion is arrived at forthwith that the patient's "emaciated state and continued dependence on tube-feeding pointed to a *fulminating phthisis* soon ending the story." The patient's emaciated state was fully accounted for by her anorexia nervosa, and there seems to be here a confusion of cause and effect. However, all is made right by performing a further leucotomy—a full one this time—and in about a month's time an *x*-ray report reads, "Cavity cleared . . . and infection almost gone." One wonders how the radiologist can tell that the infection has almost gone. We are told that "in spite of the presence of a tuberculous cavity, it was decided not to confine her to bed," as the "after-treatment of a leucotomized patient should be one of continual occupation." In a long experience of tuberculosis I have not heard of the mere existence of a cavity being made a reason for confining a patient to bed. The concluding comment is: "A specifically psychiatric procedure and the ignoring of the physical disease during convalescence led to an eventual healing of a *proved* tubercular lesion—a healing as rapid as any collapse treatment would have produced." Well, if this is sound scientific reasoning, leucotomy should become more popular than ever, and the danger of being subjected to it more imminent.—I am, etc.,

Folkestone. E. Weatherhead.

The Dangers of Mixing Domestic Cleansers

Sir,—The letter of Dr. E. Bellamy (*Journal*, October 14, p. 893) prompts me to record a similar experience which I had with a patient two months ago. In this instance a middle-aged lady with a slight asthmatic tendency, but who had had no attack for several years, decided to clean her bath with "harpic" (contrary to instructions on the tin, which state that the contents should be used for W.C. bowls only), and, following this, thought she would finish off the process with "domestos." At once the bath was filled with chlorine fumes, and she was seized by a most acute attack of asthma involving a severe degree of collapse into the bargain. Soon afterwards I was able to apply the usual remedies, and in a few days she had fully recovered, but I endorse the view that the dangers accompanying the mixing of domestic cleansers should be more widely known—particularly to housewives.—I am, etc.,

Kirton-in-Lindsey, Lincs. A. C. Thomson.

Infection by Syringe

Sir,—I was greatly interested to read in the *Journal* (July 22, p. 185) the article by Drs. R. J. Evans and E. T. C. Spooner regarding the possibility of transfer of infection when multiple injections are made with the same syringe but using a fresh sterile needle in each operation. The authors are to be congratulated on the ingenious and completely scientific research methods they have used to demonstrate that the possibility of

infection always exists, and that this is in all probability due to the sucking back of infected material from the tip of the needle when the needle is removed from the end of the syringe.

I note, however, that both in the article of Evans and Spooner and in your editorial comment in the same number (p. 204), it is apparently assumed that there would be no change in the procedure, other than the use of a separate syringe for each operation, which might remove the possibility of infection. It occurs to me that there may be a very simple and practical method of doing this. All it requires is a small piece of "plasticine," beeswax, or similar material. The suggested procedure would be the following. When after the injection the needle is removed from the tissue, which is possibly infected, the tip of the needle is thrust into a small piece of plasticine. While this is done, a positive pressure must be maintained on the plunger of the syringe. The needle is then removed from the end of the syringe, and the plug of plasticine should prevent the suction pressure from drawing any fluid up the barrel of the needle. Fluid would be, on the other hand, sucked from the syringe. The plasticine plug could then be removed from the needle before it is placed in the sterilizer.

This procedure is really identical with that used by physiologists in the newer techniques of using hypodermic syringes for the collection of gas samples (as introduced by Scholandaer and others). It would be of great interest if Drs. Evans and Spooner could find time to test this suggested procedure. If they could show that when it was used the possibility of infection became minimal, the present methods might be considered absolutely safe if supplemented by this additional precaution.—I am, etc.,

University of Western Ontario, Canada. ALAN C. BURTON.

Camels and the Temperature Chart

SIR,—I am glad that Dr. B. Webber (September 16, p. 682) has drawn attention to the misapplied use of the term dromedary to describe a two-humped temperature chart. My article in fact called it "camel" and I added dromedary in parentheses. I have no doubt that "dromedary" will continue to be used, possibly because teachers prefer it for its more sonorous quality.—I am, etc.,

London, S.W.6. W. HOWLETT KELLEHER.

Distinction Denied

SIR,—From the sheltered seclusion of the House of Lords (see report in the *Journal* of October 28, p. 1005), Lord Moran has appeared to throw derision at those consultants who have refused to be classified for distinction awards, or who have declined to accept them after they have been announced: these persons are stigmatized as the "few uneasy agnostics." If, to these two groups are added those who have refused the initial salary as a consultant, it is my belief that the total number is not inconsiderable. Many see in this system the more rapid approach of the day when all consultants will be full-time servants of the Ministry of Health and when private consulting practice will automatically cease.

Is it just that the recent president of one of our Royal Colleges should speak thus of those members of his own profession who place principles in front of monetary awards? Lord Moran himself stated in the same speech that "in these days of penal taxation it is necessary for them (that is, the consultants) to take thought for their dependants." He might have added that those who refuse these moneys also debar themselves from appreciable superannuation benefits in their years of retirement. It may appear to Lord Moran that, because a large number of consultants have accepted these awards, they believe them to be just and proper: from my own knowledge I say that a large number of consultants have reluctantly accepted the awards from sheer financial necessity, and do not believe in the principle that any committee can grade every member of a highly trained profession, working in a field as diverse as medicine, into classes "A," "B," "C," or "Nil."

Your correspondent "Z" (October 21, p. 944) draws attention to the fact that the classification of consultants into groups of different merit is already becoming public property and is bound to affect the choice of a consultant by general practitioners and by patients. How can it be otherwise? The secretaries and the finance officers of 14 regional hospital boards and of 36 boards of governors of teaching hospitals have already been informed of the classification of those in their employment: and any member of any one of these boards has the perfect right to see the list of awards. How long then can the information be kept confidential?

It will be a sad day for Medicine and for Great Britain when the levelling influence of the Welfare State forces all men to accept its dictates against their own consciences.—I am, etc.,

London, W.1. E. C. WARNER.

Medicine by Radio

SIR,—I should like to endorse Dr. Douglas Robb's letter (*Journal*, October 14, p. 890) complaining of the possible mischief resulting from the recent medical talks on the radio. I am not a wireless enthusiast myself and so have never actually heard these talks, but they are frequently quoted to me, and if the quotations are at all accurate these anonymous doctors seem to dogmatize on matters which are, to say the least, controversial. An added danger clearly lies in the fact that credulous people are likely to place undue reliance on these opinions, thinking that a doctor who talks on the radio must be far cleverer than his more modest colleagues.—I am, etc.,

Winchcombe, Glos. E. H. EASON.

SIR,—I desire to join Dr. Douglas Robb (October 14, p. 890) in his protest against the broadcasting of anonymous medical voices by the B.B.C. In order to assess the worth or otherwise of the views expressed by a speaker or writer one should know who and what he is, and what are his qualifications and experience. Anonymity deprives us of this basis of judgment and criticism. If I may adapt the old legal axiom, I would say that the expert must not only be an expert but should be seen to be one.—I am, etc.,

Belfast. H. G. CALWELL.

Substances Added to Tobacco

SIR,—Dr. E. J. Trimmer in his letter to the *Journal* (October 14, p. 889) makes a serious error in stating that saltpetre or other substance is added to tobacco to make it burn more rapidly. The addition of any such substance is completely prohibited by the Tobacco Act of 1842, and stringent penalties are imposed for any infringement of the regulations. The manufacture of tobacco in this country is carried out under rigorous supervision by H.M. Customs and Excise, and no substance other than water may be added to tobacco without written authority from the Board of Customs. In the case of flavoured tobaccos, a volatile flavouring agent dissolved in duty-paid ethyl alcohol and water may be added, but permission for such addition is granted only after samples of the material have been approved by the Government chemist.—I am, etc.,

F. D. NEECH,
London, N.W.1. Chief Chemist, Carreras, Ltd

Transmission of Kala-azar

SIR,—The generally accepted theory that sandflies are vectors of leishmaniasis has received a knock-down, if not a knock-out, blow by the criticisms of Malone and Brooks.[1] These arguments, together with Shortt's[2] attempted refutation of them, have been summed up in a letter by Brooks[3] which has recently appeared in the *Indian Medical Gazette*. The editor of the *I.M.G.* in commenting on Brooks's recent publication states, "The case against the sandfly may still be 'not proven'"; and an eminent protozoologist, the late Dr. Clifford Dobell, F.R.S., appears to have put it in even stronger terms, for according to Brooks (*loc. cit.*) Dobell described the sandfly theory as "a classical example of wishful thinking" (on the part of those who sought to incriminate the sandfly) and a "protozoological myth."

We have only to consider the following points which, if the argument of Malone and Brooks cannot be refuted, dispose of the theory

once and for all. (1) *P. argentipes* (the supposed vectors of kala-azar in India) under natural conditions take only one blood meal and do not live for more than five or six days, yet to transmit kala-azar under laboratory conditions they must be kept alive at least ten days and induced to take a second blood meal at the end of this period. (2) The life of this sandfly, in laboratories, is artificially prolonged by an absence of larval food, by keeping the insect at a uniform temperature of 28 ± 1° C., and by feeding it on raisins after the first blood meal, this being an entirely unnatural diet, as evidenced by the fact that the ovaries of the flies given a raisin diet fail to develop. (3) Experiments to recapture *P. argentipes* released on the day they emerged from their pupal cases conclusively showed that those insects did not live beyond five days, and much evidence in earlier experiments when the flies were kept under natural conditions and in the presence of larval food supports this finding. (4) There is no evidence whatever which suggests that the known distribution of *P. argentipes* in India is similar to that of kala-azar. (5) *P. argentipes*, in nature, very rarely if ever harbours flagellates of leishmania. In fact infected *argentipes* are so few that they could not possibly account for epidemics such as rage from time to time in Assam. Moreover, of the few flies infected with flagellates (about ten of the thousands examined) six were recovered from a cattle-shed in a small batch of 69. As is well known, sandflies may harbour natural flagellates, not leishmania, though possibly indistinguishable from them, and it seems probable, therefore, that no fly has ever been found in India with a natural leishmanial infection. (6) Sandflies will not bite a skin wet with perspiration, and this is entirely against the theory that these insects are responsible for the devastating epidemics of kala-azar in Assam, especially as infection generally occurs during the monsoon months, when skins are pouring with perspiration. (7) All attempts to transmit Oriental sore by the bites of infected *P. papatasii* or other sandflies *under natural conditions* have proved uniformly unsuccessful. (8) Epidemiological considerations suggest strongly that contact, and not *Phlebotomus*, is the important factor in the transmission of kala-azar and Oriental sore.

Space does not permit detailed consideration of the points enumerated above, but the fact remains that the arguments of Malone and of Brooks cannot be ignored. In the interests of science their objections must be refuted, and, till this is done, textbook teaching on the subject should be altered to suit facts, for, Sir, in the words of Bacon, "Books must follow sciences, and not sciences books."—I am, etc.,

Mussoorie, U.P., India. B. J. BOUCHÉ.

REFERENCES

1 Malone, R. H., and Brooks, A. G. (1944). *Indian med. Gaz.*, **79**, 484.
2 Shortt, H. E. (1945). Ibid., **81**, 310.
3 Brooks, A. G. (1950). Ibid., **85**, 380.

The Causes of Death in Diabetes

SIR,—Dr. Elliott P. Joslin's statistical note "A Half-century's Experience in Diabetes Mellitus" (May 13, p. 1095) is instructive. A record relating to 35,597 persons, about 60% of whom proved diabetic and about 50% of whom again turned out to be fatal, represents a valuable material worth publication as basic data for further studies. It can of course be summarized into a table giving the number of cases under a multiple classification by age, sex, year of admission, year of death, types of application, nature of treatment, duration of illness before admission, etc. The valuable article in its very condensed form fails, however, to throw light on certain points of importance.

For instance, a comparison ought to have been made of the percentage of fatality (to total incidence) of the respective causes individually. It is not enough to know that the percentage of deaths from "coma" to total deaths from "all causes" has fallen. It is also useful to investigate if the percentage death from "coma" to total incidence of coma and to total incidence of diabetes is declining also, and if so to what extent.

Again, the percentages shown in Table II in each of the six eras, added up for the eight "causes," always exceed 100%, indicating that the eight causes enumerated therein are not mutually exclusive—i.e., a patient may have more than one cause responsible for his death. The number of such mixed cases is, however, not likely to be large, and should have been shown separately along with categories of single causes—e.g., coma and gangrene, cancer and tuberculosis, etc.

Finally, it is also desirable to split up Table II further by the duration of illness in the patient, which may have a differential effect on the fatality of a cause.—I am, etc.,

Indian Statistical Institute, Calcutta. J. M. SEN GUPTA.

Spontaneous Amputation of the Cervix

SIR,—Mr. I. F. MacMath (*Journal*, August 26, p. 498) gave an interesting account, concluding with some suggestions regarding aetiology. Since this accident in labour is comparatively rare I think it is worth recording a further case.

The patient, aged 37, had a previous pregnancy associated with toxaemia in 1941. That labour commenced at term and was prolonged throughout its course owing to some degree of pelvic contraction. The baby was born eventually, spontaneously, and weighed 6 lb. 2 oz. (2.6 kg.). On the occasion of the present pregnancy the patient developed mild toxaemia, and at term I induced labour by means of a high rupture of the membranes. The cervix was approximately 1½ in. (3.7 cm.) long but admitted 1½ fingers, and there was a laceration on one side of it. The head was fixed in the brim, but there was no evidence of disproportion. Labour commenced briskly 36 hours later. Three hours before delivery the patient started to bear down when the cervix was only three fingers dilated and the head was in the mid-cavity, and she continued to do so till spontaneous delivery took place, in spite of generous supplies of analgesia and every conceivable means of dissuasion at the disposal of the midwife. The total length of the first and second stages was 10½ hours. At the end of the third stage there was some bleeding, but the quantity of blood lost was not more than 10 oz. (280 ml.). The midwife, however, was alarmed to see lying with the placenta a ring of cervix which measured 1½ in. (3.7 cm.) in depth and 3 in. (7.4 cm.) in diameter. It was oedematous and purple, and the amputation extended from the upper level of the old laceration. The patient made an uninterrupted recovery. When I saw her again six weeks after delivery there was no vaginal discharge. On inspection, the cervix was level with the vaginal vault and was healed, and appeared like a small button with a red centre where endocervical mucosa was present.

In most of the cases reported, spontaneous amputation of the cervix has taken place in primigravidae. In this case, I should say that the factors responsible were the uncontrollable pushing of the patient together with the presence of an old laceration of the cervix.—I am, etc.,

Margate. JEAN R. C. BURTON-BROWN.

Unsuspected Coat Button in an Infant

SIR,—The following case is reported not because it is remarkably outstanding in any particularly unusual features, but in order to emphasize in the care and treatment of young children the importance of always bearing in mind the possibility of the presence of a foreign body, either in the respiratory passages or in some portion of the gastro-intestinal tract.

The patient, a child of 10 months, was first seen in the hospital casualty department on October 6, 1949. The history then was that it had not been well for the previous six days, and that on September 31 it had vomited once or twice about five minutes after its feeds. Similar slight vomiting had recurred on the following two days, after which it had ceased. The child then was found to have a temperature of approximately 100° F. (37.8° C.), which was more or less maintained up to the time of admission to hospital. Apart from the vomiting already mentioned the feeds had been taken well, and the bowel action was normal. There was also no history of any respiratory symptoms. As the pyrexia continued to be present, and the general practitioner concerned could find no obvious cause for it, the case was referred to hospital for further investigation.

In the casualty department the medical officer on duty could find no abnormal clinical signs except, possibly, some degree of reddening of the tonsils and fauces. Air entry was good and equal on both sides of the chest and there were no adventitious sounds. Later, in the ward, the urine was tested and also found to be normal. In view of the doubtful appearance of the tonsils a tentative diagnosis of tonsillitis was made, and the patient was given a course of "sulphatriad." In less than two days his temperature fell to normal—where it remained for the next three days. It then rose again to 101° F. (38.3° C.), and on October 11 an *x*-ray picture of the chest was taken—not because of any special indication, but simply on the off-chance of finding some cause for the pyrexia, such as a hilar adenitis.

This radiograph demonstrated, much to everyone's astonishment, the presence of a fairly large circular foreign body which appeared to be of the nature of a metal washer, or the wheel of a toy motor-car. The child was then given a general anaesthetic, and with the aid of a laryngoscope the object could be seen impacted in the post-cricoid region of the pharynx. When it was removed it proved to be a metal coat button 1 in. (2.5 cm.) in diameter. After the operation the patient was put on penicillin, the temperature fell, and he made an uninterrupted recovery.

During the whole of the time in hospital prior to the discovery of the foreign body the child took his feeds well, including solid food, and never once vomited or showed any signs of dysphagia. His chest and abdomen were examined daily and at no time were any abnormal physical signs detected. A 1 in 10,000 Mantoux test which was carried out on admission was also negative.

In this case, as in others of a similar kind, there was no history of the child having swallowed a foreign body; when he first began to vomit, his parents thought that some of his food had "upset his stomach," since there was no difficulty in the actual swallowing mechanism. The location of the button at the level of the cricoid-pharyngeal junction was in the situation most commonly found (in 75% of such cases). The foreign body is usually found immediately below the cricopharyngeus muscle, for here the musculature is weak in comparison with that directly above. Furthermore, at this point the oesophagus becomes anatomically constricted, so that these two factors combined may be sufficient to prevent the continued passage of a foreign body. Other sites where narrowing of the oesophagus occurs, and where arrest may take place, are at the hiatus in the diaphragm (the second most common), and at the level of the arch of the aorta. If the offending object is not removed an inflammatory reaction will be set up and a retro-pharyngeal abscess or even perforation of the oesophagus may occur. In this particular case presumably the secondary rise in temperature was due to a developing oesophagitis.—I am, etc.,

London, E.2. GEORGE NEWBOLD.

Oro-antral Fistulae

SIR,—In answer to various verbal and written requests for further details of the method of closure of oro-antral fistulae described in your correspondence columns of September 9 (p. 630), to carry a flap under a short tunnel or "bridge" is a well-tried device. However, it might not seem feasible, at first sight, in dealing with the palate. The bridge, partly composed of tissue which would otherwise have to be sacrificed or pared away to freshen the edges of a defect, holds the pedicle in its new position safely, without restricting its blood supply. Only the distal portion of the flap need be sutured. To divert a pedicled flap through a short tunnel or bridge to its new destination almost guarantees the success of any plastic operation. The bridge eventually atrophies and disappears. The pedicle, containing nutrient vessels and nerves, survives, thus closing the defect with well-nourished tissues.—I am, etc.,

Halifax. W. O. LODGE.

Treatment of the Common Cold

SIR,—It was a pleasure to me to read the unprejudiced statistical analysis of the value of the antihistamine drugs in treatment of the common cold (*Journal*, August 19, p. 425). It is always salutary to be reminded that personal experience is merely misleading. Nevertheless, the following case history may be of interest to your readers. I myself have been a prey to such upper respiratory infections, of increasing severity, all my life. In winters at home I progressed from one cold to another, in which during the early phases a profuse rhinorrhoea made life almost intolerable, and thought impossible. Purely automatic actions with one hand (the other clasping a handkerchief to a dripping and fissured nose) were feasible, but otherwise intelligent occupation for me altogether ceased until the second phase, which was one of prolonged expectoration of the reaction set up in the larynx, trachea, and bronchi. My friends, with justification, christened me "Winnie-the-Pooh," in that I was fierce only in the winter months.

Here in Singapore, where there is no winter, I hoped for relief but found none. There was not even a seasonal improvement. When the reports of success from antihistamine drugs percolated through to the more remote East I consumed "benadryl" in increasing doses, and it served to make me sleepy and irritable as well as miserable. I was not sanguine enough to expect any result from promethazine hydrochloride either, nevertheless I took a 25-mg. tablet one day simply because I had been sent a sample. To my surprise, therefore, the rhinorrhoea ceased absolutely, with the result that it was possible to work and think (the malaise was of negligible importance) and, more important, the usual sequelae did not develop. These effects have been confirmed in later colds.

I am aware that one cannot judge by individual cases. It is possible that in my case an acute allergic rhinorrhoea is provoked by the infection, and that this is controlled by "phenergan." I find it hard to believe that I am unique in this respect, and to those others who suffer from the "uncommon cold" I would strongly recommend at least a trial of one or more of the antihistamine drugs.—I am, etc.,

Singapore. KEMBLE GREENWOOD.

Midwife and Doctor

SIR,—At a time when there is once again a certain amount of deterioration in the relations between midwife and doctor it is interesting and useful to recall the advice of William Smellie, who experienced similar difficulties 200 years ago. In his treatise on the *Theory and Practice of Midwifery*, edited by McClintock (1, 432), one may read about the midwife as follows:

. . . She ought to avoid all reflections upon men practitioners; and when she finds herself at a loss, candidly have recourse to their assistance. On the other hand, this confidence ought to be encouraged by the man, who, when called, instead of openly condemning her methods of practice (even though it should be erroneous), ought to make allowance for the weakness of the sex, and rectify what is amiss, without exposing her mistakes. This conduct will effectually conduce to the welfare of the patient, and operate as a silent rebuke upon the conviction of the midwife; who, finding herself treated so tenderly, will be more apt to call for necessary assistance on future occasions, and to consider the accoucheur as a man of honour and a real friend. These gentle methods will prevent that mutual calumny and abuse which so often prevail among the male and female practitioners; and redound to the advantage of both: for no accoucheur is so perfect but that he may err sometimes; and on such occasions he must expect to meet with retaliation from those midwives whom he may have roughly used.

—I am, etc.,

Oxford. G. GORDON LENNON.

POINTS FROM LETTERS

Schizophrenia and Dienoestrol

Dr. G. ROSENBERG (Guildford) writes: A female patient of mine, now 27½ years of age, has been suffering from schizophrenia for the last eight years. She was a certified patient in a mental hospital (no shock treatment) and is now living with her parents, who run a farm. She was discharged contrary to the hospital's advice. She was restless, unable to concentrate her mind upon anything, and uncooperative. The hospital's prognosis was not good. Nine months ago her mother told me that her menstruation was irregular, scanty, lasting less than 24 hours. I decided, reluctantly, to try "dienoestrol" 1 mg. once a day. After about three weeks there was a marked and quite unexpected change in the patient's behaviour. She began to show interest in her surroundings and even started to make herself useful on the farm and in the house. Two months later I stopped the administration of dienoestrol, fearing the consequence of overdosing and sexual embarrassment. The old condition of restlessness and destructive negativism returned after ten days. Her mother asked me to restart the treatment, "as it was so much easier to live with her, when she took the pills." The patient responded by becoming again, and remaining, friendly and co-operative. There is so far no sign of abnormal sexual behaviour. She has never had a spontaneous remission of this extent and duration since 1943.

Mind and Body

Dr. G. C. ADENEY (Ditchling, Sussex) writes: The argument of Dr. G. E. Beaumont (October 21, p. 937) in disposing of the psychogenesis of ulcerative colitis seems to carry with it a remnant of the Cartesian fantasy wherein mind and body became two distinct entities. . . . There is one sheet anchor we must lay hold on. It is that a man (or woman) is a single being, and not a duality. To say that "a disorder of the mind produces a disease of the body" implies a duality, and the very word psychogenic is misleading in this respect. . . . For us they should be terms to represent in shorthand the two mutually accommodating methods of approach to the sick human being, one the subjective and the other the objective. This dual approach to man *in toto* is for diagnosis and for therapy an empirical necessity, and the art of medical practice is the combination of the two.

Obituary

WILLIAM GLEN LISTON, C.I.E., M.D., F.R.C.P.Ed.

Lieutenant-Colonel William Glen Liston, I.M.S.(ret.), died at Morar, Inverness-shire, on October 18, aged 78. He was well known for his work on the part played by rat fleas in the transmission of plague.

Liston was born in Secunderabad, where his father was an Army chaplain. He was educated at George Watson's College, Edinburgh, and at the Albany Academy, Glasgow, and he went on to study medicine at Glasgow University, where he graduated M.B., Ch.B. in 1897. He proceeded M.D. with honours in 1902. In 1898 he entered the Indian Medical Service, and during the training course at Netley he came under Almroth Wright, then professor of pathology at the Army Medical School. Almost immediately after his arrival in India he was appointed to work with the Indian Plague Commission, a Royal Commission, and in a laboratory in Bombay he studied the plague bacillus, attempting to isolate the organism from soiled clothes and floors, though with practically no success. He was then posted to military duties, and after completing these he entered the Bombay civil medical department, joining the staff of the Plague Laboratory under Haffkine. He also interested himself in the study of anopheles carriers of malaria, and in 1904 was joint author of a really valuable monograph on the anopheles mosquitoes of India. His most important work, however, was his investigation of the transmission of plague by rat fleas, the results of which were published in 1905. By ingenious experiments he established the crucial fact that close contact between infected and healthy rats did not result in infection spreading in the absence of rat fleas. This work was confirmed and extended by the second Indian Plague Commission of 1907 under Sir Charles Martin, as he later became. The work of this Commission rather overshadowed Liston's earlier researches.

In 1911 Liston became director of the Bombay Research Laboratory, where he had under him a group of young men from the recently formed Bacteriological Department of India, later to be called the Research Department of the Indian Medical Service. The laboratory was several miles from the centre of Bombay, but Liston hardly ever missed a daily visit to one or other of the three large hospitals, where his advice was sought by the physicians and surgeons, and where he himself collected the specimens requiring examination. He also became senior member of the Plague Research Department, and was awarded the C.I.E. in 1913. His wide interests included membership of the Bombay Municipality, where he did valuable work. During the later part of his service he warmly advocated the foundation in Bombay of a school of tropical medicine and hygiene, but unfortunately he failed to obtain the necessary support for his plan. During the first world war his special experience was used in military service, and he was mentioned in dispatches. Liston became a Fellow of the Royal College of Physicians of Edinburgh in 1923, and a year later he retired from the I.M.S. and was soon appointed bacteriologist to the Edinburgh Royal College, where he found congenial and useful work. He was also appointed by the Colonial Office as their consulting physician for Scotland. He attended the Centenary Annual Meeting of the British Medical Association in London as Vice-President of the Tropical Diseases Section.

Glen Liston was a greatly respected member of the Indian Medical Service, who by steady work in the early days of medical research in India built up a reputation as a sound and reliable worker and a good comrade. Some of his contemporaries felt that he did not reap the full rewards his work deserved.—L. R.

Lieutenant-Colonel PATRICK WILKINS O'GORMAN, I.M.S., died on September 22 in London, aged 90 years. He was born in Calcutta, where his father, who came of a military family in Limerick, held an appointment under the Government of Bengal. O'Gorman served for a time in the Indian Medical Department before coming home to study medicine at Edinburgh University. He qualified in 1886, and shortly afterwards he was successful in open competition in gaining an entrance into the Indian Medical Service. Returning to India, he was appointed as a surgeon in the Sirhind district in 1888, and in 1891 he saw active service on the North-west Frontier in the first and second Miranzai expeditions, for which he received the India Frontier Medal and Clasp. During a period of what appears to have been study leave he obtained the D.P.H.(Cambridge) in 1898 and graduated M.D.(Brussels) in 1899. He became a Member of the Royal College of Physicians of Edinburgh in the same year. In 1908 he was promoted to the rank of lieutenant-colonel and for a time he was in charge of the medical store depot in the Lahore district. In the 1914–18 war he again saw service on the North-west Frontier, and in 1917 he served as administrative medical officer to the Lindi Force in German East Africa. He was mentioned in dispatches and made a C.M.G. in 1918. A year later he was invalided from the service. On his retirement a new chapter of activities opened up for him. He was a founder member of the Guild of SS. Luke, Cosmas, and Damian in 1910, and for this, in later years, he was honoured by the Papal Cross. He was the first editor of the *Catholic Medical Guardian*, and for many years was a regular visitor in all weathers to the platform of the Catholic Evidence Guild in Hyde Park. He was a founder of the Catholic Pharmaceutical Guild of Great Britain and a co-founder of the Catholic Nurses Guild. In addition, from 1933–9 he gave lectures on tropical diseases and sanitation to missionaries at St. Charles College, North Kensington. His professional interest in the welfare of lepers continued to the last. He was unmarried.

Dr. GILBERT WILLIAM CHARSLEY, who was in general practice in Sydenham until he retired in 1937, died in Hampstead on September 29 aged 79 years. Born in Beaconsfield in 1870, he was educated at Magdalen College School and Birmingham University, where he studied medicine. He qualified in 1895, and six years later graduated M.B., Ch.B.(Birm.). After some years of hospital and private work Charsley went into partnership in Malvern. Shortly before the 1914–18 war he moved to Sydenham. He served in the R.A.M.C. during that war and was in a hospital ship which evacuated sick and wounded from Gallipoli. When the war ended he returned to Sydenham, where he remained in practice until he retired. He took an active part in the affairs of the B.M.A., being chairman of the Lewisham Division in 1922 and again in 1929–30. He represented the Division at the Annual Representative Meetings in 1931, 1932, and 1933, but his main interest was always in the Benevolent Fund of the Association. Charsley was honorary physician of the South-eastern Children's Hospital for over 20 years, though he excelled in what is now known as geriatrics —the care of the aged and infirm. He always regarded medicine as a vocation, and as such to be held superior to any monetary considerations. A man of high ideals, he was in all respects a kindly Christian gentleman. He is survived by his wife, his son, and his daughter. His elder son was killed in an air accident during the last war.—G. R.

Mr. ROBERT YOUNG AITKEN, whose working years were given to the service of surgery in Blackburn and district, and especially to the Blackburn Royal Infirmary, died at his home near Blackburn on October 6, at the age of 78. He had been in ill-health for some time. He was born at Dalry, in Ayrshire, and studied medicine at Glasgow University, graduating M.B., C.M. in 1893. He proceeded M.D. in 1897 and became a Fellow of the Royal

College of Surgeons of England in 1901. Shortly after qualifying he obtained the post of house-surgeon at the Blackburn Royal Infirmary, and thus began his long connexion with this institution. He was elected assistant honorary surgeon in 1901 and became senior honorary surgeon in 1914. On his retirement in 1932 he became honorary consulting surgeon to the hospital. During the first world war he did much surgical work at the Calderstones Military Hospital, and for this he was awarded the O.B.E. For more than 30 years he was a medical referee under the Workmen's Compensation Act, and he was chairman of the Blackburn Insurance Committee from 1943 until its demise in July, 1948. He consented to be president of the Blackburn Royal Infirmary in 1943, and he was appointed its first patron when the new hospital service commenced in 1948. The infirmary possesses two "memorials" which gave Robert Aitken much happiness. First, on his retirement, his portrait in oils—from friends and admirers—was presented to him by Lord Moynihan and hung in the Infirmary. Secondly, in 1948, a ward was named the "Aitken Ward" and a tablet commemorating his services to the Infirmary was affixed.

W. B. writes: Aitken's surgical life in Blackburn began at just the right time: the rising tide of modern surgery was beginning its sweep over the provincial hospitals, and he was well equipped and eager to develop it to the full. For a number of years he had had valuable experience as a general practitioner with a very large practice, but surgery was always his absorbing interest, and he soon gave up everything to devote himself whole-heartedly to it and to the building up of a first-class surgical department at the infirmary. In Blackburn, when we are inclined to be reminiscent, we talk of "before Aitken's time" or "after Aitken's time," so tremendous was his influence and so notable was his work. He was a surgical pioneer, full of energy and enthusiasm, but with a high regard for the art of surgery and the good of his patients. The amount of surgical work he carried out was enormous: as he himself said at the Moynihan presentation ceremony, "I have made little or no mark on the public life of Blackburn, but I have put my professional 'mark' on many thousands of its inhabitants." We who knew him best would not accept his estimate of the value of his civic worth: he was an active magistrate for 26 years, and was universally admired and respected by his fellow-townsmen. Those of us who worked with him during the last 30 years have felt a respect, amounting almost to devotion, for a great surgeon and a much-loved colleague. His memory will for years remain warm in the hearts of many of the people of Blackburn and its neighbourhood.

Dr. STEWART SEPTIMUS SIMMONS, who was in practice in South Norwood for 37 years, died at Monxton, Andover, on October 8, at the age of 80. He studied medicine at University College Hospital, qualifying in 1896. A year later he started in practice in South Norwood, where he was for many years district medical officer. Although he took little part in public work and was by nature a modest man, his life was a model of the integrity and scrupulous attention to ethical behaviour which was the hallmark of his generation, and he will be remembered with gratitude for his conscientious work. He was forced to retire in 1937 on account of ill-health, but a splendid constitution enabled him to enjoy a span of years in the companionship of his wife, who predeceased him by two months. He is survived by two sons, who are both members of the medical profession.—H. H. A. E.

Dr. ISAAC BAINBRIDGE died in Brough, Westmorland, where he had been in practice for nearly 40 years, on October 10, at the age of 65. He studied medicine at Durham University, graduating M.B. with honours in 1910. He proceeded M.D. in 1933. Almost immediately after qualification he began to practise in his native town of Brough, where he remained until his death. One of the old type of country doctors, Dr. Bainbridge never spared himself in his work for his patients, who came first always in his thoughts. He had a very wide and extensive practice amongst the small towns, villages, and fell farms of North Westmorland, and this wide practice in winter entailed feats of physical endurance when the roads and fells were snow- and ice-bound. His recreations were shooting and fishing, and he was both a first-class shot and an excellent salmon fisherman in the rivers Eden and Lune. Dr. Bainbridge was immensely popular with all classes of the community, and he was buried in the ancient churchyard of Brough in the presence of a very large congregation. By his death the people of North Westmorland have lost a good doctor, a wise and shrewd counsellor, a staunch friend, and a great gentleman. Our sympathy is extended to his widow and daughter.—E. C. B.

Dr. SAMUEL THOMPSON ROWLING died at his home in Leeds on October 12, at the age of 76. He was educated at Leeds Grammar School, Yorkshire College, and Leeds University, graduating M.B., Ch.B. with honours in 1896. As a student he won the Hardwick Prize in clinical medicine. After holding an appointment as a house-surgeon at the General Infirmary and a short period in general practice, he decided to specialize in anaesthetics, and he became anaesthetist to the General Infirmary at Leeds in 1910 and later to the Ministry of Pensions Hospital, Leeds, and to the West Riding County Council Hospital at Otley. In the first world war Rowling served for a time in the R.A.M.C. He took the D.A. in 1935 and became a Fellow of the Faculty of Anaesthetists (R.C.S.) in 1948. He was a lecturer in anaesthetics at the University of Leeds for many years, and, although he was due to retire in 1939, he continued to teach his subject during the second world war. He was the first president of the Yorkshire Society of Anaesthetists. Quite early in his career Rowling realized the need for a knowledge of the concentrations of inhaled gases and vapours, and he produced an ingenious chloroform-paraffin bottle and a modification of Clover's inhaler. This work came to be quoted by the standard textbooks and was incorporated in his thesis for the M.D. degree, which he obtained in 1920. The work of the University of Leeds was of great interest to him, and he was chairman of Convocation from 1924 to 1926. He was a keen first-aid teacher, being corps surgeon to the St. John Ambulance Brigade. A man of strong religious convictions, he was an enthusiastic Church worker. His sympathy and kindly courtesy were manifest in all his dealings with his patients and his professional colleagues.—F. W.

Medico-Legal

DRUNK BUT NOT IN CHARGE

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

In applying the prohibition in the 1930 Road Traffic Act against drunkenness while in charge of a motor-car, the courts have tended to push the concept of "in charge" to unreasonable lengths: so much so that it has been practically impossible for a person alone in a car to divest himself of responsibility for the vehicle even by such an extreme step as parting with his ignition key so that the car could not be moved. It is on record, we believe, that a court has convicted a person who was not the owner of the car and was not able to drive it even when sober, but had been left alone in it for convenience while drunk and incapable.

A recent decision, however, showed a welcome disposition to adopt a more practical standard. A general practitioner, owing to a combination of fatigue and a few drinks, found himself unfit to drive his car. He therefore gave the ignition key to a friend and retired harmlessly to the back seat. On the way home the friend had to make a business call, and while the doctor was alone in the car a police officer found him asleep. The court found that the facts did not constitute the offence charged, and dismissed the case.

Subject to Ministry of Health approval, Newcastle Town Moor Isolation Hospital is to be extended and equipped as a 70-bed plastic surgery centre. It is hoped that it will eventually become the headquarters of smaller plastic surgery units in the region. The demand for plastic surgery in the North-east is said to be very great because of the number of industrial accidents.

Medical Notes in Parliament

Infant Foods and Maternity Benefits

On October 19 Mr. TURTON asked whether Mr. Bevan knew that medical practitioners under the National Health Scheme were unable to prescribe special foods for infants suffering from digestive troubles; that in certain areas local health authorities operated a means test in considering whether an infant should be provided with these special foods; and what steps he was taking to remedy this position.

Mr. BEVAN answered that the pharmaceutical services provided under the National Health Service were limited to drugs and medicines. Local health authorities had power to make a charge for baby foods supplied by them where they considered this to be justified by the parents' means. He saw no reason to alter this arrangement.

Mr. JANNER asked whether Mr. Bevan was aware that owing to the shortage of nurses and hospital accommodation many expectant mothers had to have their confinements at home, and that the maternity benefits paid to them were the same as to those who were confined in hospitals. He advocated steps to give extra financial assistance to expectant mothers confined in their own homes, to cover the additional expenses.

Mr. BEVAN said he had no powers under the National Health Service Act which would enable him to make grants towards expenditure incurred privately. A change in National Insurance maternity benefits would be a matter for the Minister of National Insurance. At her request the National Insurance Advisory Committee was now engaged in a review of these benefits.

Accommodation of Cancer Cases

Mr. PETER SMITHERS on October 26 asked whether the Minister of Health would make special provision under the National Health scheme for the accommodation in hospital of incurable cancer cases, to avoid their being placed in wards for the aged and infirm.

Mr. ANEURIN BEVAN replied that it was for the regional hospital boards to decide on the allocation of beds between different types of case. He had no reason to suppose that they did not take into account the special circumstances of these patients.

Health Control Form

Mr. SMITHERS also asked what purpose was served by Health Control Form No. 2, which required those entering the United Kingdom to state where they had spent each of the previous 14 nights; and whether he would now withdraw this form.

Mr. BEVAN replied that the form now in use was not quite as described. Without delaying the passengers it showed whether they had recently been in an infected area and enabled any necessary measures to be taken. He could not withdraw the form so long as the International Sanitary Conventions required it to be used.

Cortisone

Mr. EDWARD EVANS on October 24 asked the Lord President of the Council what steps were being taken by the Medical Research Council and other bodies to make available for sufferers from rheumatoid arthritis the drug cortisone, now being produced in the United States of America; and whether adequate funds to develop this research were and would continue to be made available to these bodies.

Mr. HERBERT MORRISON said an extensive programme of co-ordinated research on cortisone and related substances was being carried out and adequate funds were available to develop the work. The question of providing cortisone for the routine treatment of patients was outside the Council's province, but much more research was necessary before it could safely be recommended for general use in rheumatoid arthritis.

Group Captain C. A. B. WILCOCK said that treatment of rheumatoid arthritis by cortisone was experimental and had serious effects on patients, particularly on women. He asked for an assurance that the drug would not yet be made available to the public.

Mr. MORRISON replied that this important consideration would be kept in mind.

Mr. RAYMOND BLACKBURN asked whether it was true that cortisone would be made available in November at drug stores in the United States. The Medical Research Council should keep in touch with America on the subject.

Mr. MORRISON said there was no doubt about such contact. He did not know whether the drug was being made available in American drug stores. It did not follow that cortisone should be made available here. The production of cortisone in this country must be limited by the availability of the essential material, for which no alternatives were in immediate prospect. Limited supplies were imported for use in hospitals. Arrangements for its production would be considered as soon as practicable.

Pay in the Services

Wing-Commander N. J. HULBERT on October 25 asked the Minister of Defence for a statement on pay increases for the medical branch of the Services.

Mr. E. SHINWELL said the urgency of this matter was well understood and he hoped to make a statement soon.

Major NIALL MACPHERSON asked what was the average increase in pay of the European doctors in the medical service in Malaya and Singapore, comparing 1950 with 1938; and what was the rise in the cost of living for Europeans in those territories as between 1938 and 1950.

Mr. J. GRIFFITHS replied that for most doctors the average increase was between 50% and 60%. For those in the highest posts it was 30%–50%. In August, 1950, the Singapore cost-of-living index for Europeans was 110% above the 1938 level; in June, 1950, the corresponding index for the Federation of Malaya stood at 142% above 1939.

In answer to a suggestion that Asian doctors should be recruited for East African medical vacancies, he said that East African Governments already employed Asian doctors, but he was satisfied that European doctors were also needed.

Dishonest Certificates

On October 28 Major GUY LLOYD inquired how many reports had been received from doctors of dishonest attempts to obtain sick certificates from them. The "racket" was notorious.

Dr. EDITH SUMMERSKILL, Minister of National Insurance, replied that she was not aware of any such reports, and she must register a protest on behalf of patients and doctors. If a patient asked for a certificate to which he was not properly entitled, the doctor would refuse, but would not communicate with her on the subject. Her Department had no responsibility for the matter.

Blood Transfusion and Atomic Warfare.—In reply to a question on October 19, the Minister of Health said he was asking regional hospital boards to plan for the expansion of the Blood Transfusion Service and the establishment of duplicate centres.

St. Thomas's Hospital.—The Minister of Health stated on October 19 that the board of governors had prepared a scheme for the entire reconstruction of the hospital, and it was hoped preliminary work would start this year.

Aliens and N.H.S.—Instructions have been issued to Immigration Officers that, where they are satisfied that the sole purpose of an alien's visit is to secure free medical treatment, leave to land should be refused.

Purity of Ice-cream.—Recent bacteriological tests have shown improvement, but the Minister of Health is not satisfied that there is any test reliable enough to justify its use as a legal test for this purpose.

Help for the Deaf.—According to a statement by the Minister of Health, a number of hospitals already provide training in lip-reading. While it may be possible to extend this in a limited way, training in lip-reading is, strictly, a function of the education rather than of the hospital authorities. (About 90% of patients continue to use the "medresco" hearing-aids regularly.)

Antibiotics from the U.S.—The Minister of Health stated in a written answer on October 24 that aureomycin was already being imported from the United States. Import of terramycin would be considered if the need arose.

Electrocution.—On live rails other than those belonging to the London Transport Executive 16 children were killed and 10 injured during 1949.

Universities and Colleges

UNIVERSITY OF OXFORD

In a Congregation held on October 12 the degree of D.M. was conferred on N. B. Myant.

UNIVERSITY OF LONDON

The degree of D.Sc. has been conferred on Dr. H. O. Schild (University College) and Mr. J. J. D. King, Ph.D., F.D.S. R.C.S. (King's College Hospital Medical School).

UNIVERSITY OF WALES

The following candidates for the degrees of M.B., B.Ch. at the Welsh National School of Medicine have satisfied the examiners at the examination indicated:

HYGIENE.—A. S. Bater, Joyce M. Bennett, Vyvien J. Bennett, D. R. Boyns, P. Callaghan, J. S. Campbell, L. V. Chubb, G. W. Clark, Patricia M. Coldrick, R. L. Coppock, B. N. Davies, Barbara C. Edwards, J. C. Evans, Marjorie J. S. Evans, J. N. Glanville, P. I. Harry, A. P. Jones, A. P. Jones, D. J. Jones, Olive C. Jones, Nesta Lewis, Rachel B. J. Lewis, Margaret E. Lloyd, Mary I. Lloyd, Janet M. Moffat, I. B. Morgan, E. J. Phillips, R. P. Phillips, D. H. Richards, G. Williams, W. Williams, Eve Wiltshaw, Isobel M. Young.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

At a quarterly comitia of the College held on October 26, with the President, Dr. W. Russell Brain, in the chair, Dr. W. G. Wyllie, Dr. L. B. Cole, and Dr. F. Avery Jones were elected Councillors.

The following were elected representatives of the College: Professor T. L. Hardy on the Committee of Management; Professor A. A. Moncrieff on the Central Midwives Board, the President, Sir Leonard Parsons, Sir Harold Boldero, Dr. W. G. Barnard, and Sir Allen Daley on the Standing Joint Committee of the three Royal Colleges; Dr. C. M. Hinds Howell, Dr. T. C. Hunt, Dr. J. C. Hawksley, and Dr. J. B. Harman on the Committee of Reference; Dr. C. M. Hinds Howell and Dr. J. B. Harman on the Central Medical War Committee; and Dr. C. E. Newman on the Examination and Tuition Advisory Board of the Association of Medical Records Officers.

Dr. V. H. Springett was appointed Milroy Lecturer for 1952, his subject being "An Interpretation of Statistical Trends in Tuberculosis."

The President announced that the Jenks Memorial Scholarship had been awarded to Peter Milton Scott, late of Epsom College.

MEMBERSHIP

The following, having satisfied the Censors' Board, were elected Members of the College: A. P. C. Bacon, G. A. Beck, E. A. Beet, L. Brotmacher, N. J. Brown, W. J. G. Burke, R. A. Burston, F. G. Campbell, F. S. Carter, S. Cope, B. Creamer, G. S. Crockett, G. W. Csonka, B. A. D. Curtin, R. G. Epps, L. P. L. Firman-Edwards, A. A. Fraser, J. V. Gordon, E. P. W. Helps, Constance M. Hesling, H. D. G. Hetherington, Major, R.A.M.C., Yee Ip, P. N. Laha, M. W. Leivers, R. Lwin, J. Mackinnon, R. S. Male, H. G. Mather, J. M. Mehta, A. B. Mukharji, D. R. L. Newton, C. M. Ogilvie, C. M. B. Pare, Margaret M. Platts, W. L. Sanders, Captain, R.A.M.C., G. Selby, D. E. Sharvill, R. H. Vines, W. V. Wadsworth, Joan C. Wells, G. B. Westmore.

LICENCES

Licences to practise were conferred upon 154 candidates (including 26 women) who had passed the final examination in Medicine, Surgery, and Midwifery of the Conjoint Board and who have complied with the necessary by-laws:

R. G. Adams, W. V. Agnew, D. G. E. Alldridge, D. F. A. Aubin, J. A. C. Bamford, Agnes R. D. Bartels, I. Blakeway, R. M. Bland, M. H. S. Bound, Betty B. Boxall, Yvonne J. Bradfield, G. S. Brind'ey, I. M. Brown, A. A. F. Bryson, Patricia M. Bushell, E. P. Cadbury, W. H. Callander, S. J. Carne, Mary A. Carter, M. W. Cemlyn-Jones, H. N. Chambers, E. H. Cooper, Sheila D. Cooper, C. H. Corby, R. G. Covell, Elizabeth P. Cracroft, J. R. Currie, A. J. I. Dacre, Mary G. C. A. Dale, D. F. C. Deacon, G. R. C. Deacon, N. S. de Alwis, J. H. de Graeve, Helen M. Dence, M. A. de Valero Wills, J. A. Dickinson, P. L. C. Diggory, S. B. Donigiewicz, J. W. Draper, Winifred B. Drew, P. G. J. Duncan, B. Edwards, I. A. El-Bahrawy, B. R. Ellis, P. Engel, J. E. Epsom, M. L. E. Espir, J. F. A. Everson, P. V. N. Ezekwe, Mary U. Franklen-Evans, T. Freeman, R. E. Graham, W. S. Griffiths, I. M. Guiver, T. K. Hardy, J. G. M. Harrison, Robina Harry, Ursula E. E. Henderson, P. G. Higgins, D. Hines, G. C. A. Holden, J. M. Holden, P. E. B. Holmes, W. D. Hopkins, H. Horwitz, Desiraie M. G. Howells, St. C. M. L'A. Hubbard, P. E. Huddy, E. M. Hume, Anne L. Hunter, Elsie S. Jaikaran, A. Jedrzejczak, M. H. F. Johnson, Pamela M. Johnson, E. T. J. Jones, R. J. B. H. Jones, N. Kaye, P. H. Kendall, D. G. Kibblewhite, D. E. W. Knight, F. W. Knowles, R. Korn, J. P. Lavender, A. C. K. Lawrence, Eileen Lawson-Matthew, A. D. Leschen, Mair E. Lewis, Margaret E. Lloyd, D. H. M. Lord, R. J. Lunniss, N. MacDonald, K. M. McFadyean, K. E. MacLachlan, A. D. McLaughlin, A. R. May, D. H. Mellins, R. P. Michael, G. Miller, B. K. Montgomery, Jean E. Moore, Margaret C. R. Moore, Doreen P. Morgan, J. G. Norman, R. G. Owen, H. J. G. Palmer, Mary Parsons, D. L. Pedersen, B. W. Petty, H. F. Pile, E. N. Plomer, H. F. W. Pribram, J. K. Price, R. B. Pridie, J. H. Ratcliffe, J. H. Reading, R. B. O. Richards, Margaret M. Roach, B. A. Roberts, A. L. Ross, J. W. Rotenberg, J. J. H. Rymer, H. N. St. John, Barbara J. Salisbury, J. F. Santer, F. B. Sartory, S. A. Seligman, I. M. Sharpe, I. M. Simmonds, E. M. E. I. Sondervorst, N. E. Stebbings, F. P. Stephens, K. H. Stone, J. D. Sutcliffe, R. A. Sutherland, L. R. Sweetman, S. S. Swift, Ginette M. Tebbutt, I. B. Thomas, P. K. Thomas, H. T. Thompson, D. J. G. Tilley, J. A. Tottle, Rachel E. Turner, R. Vickers, F. H. Walker, I. H. Wallington, A. V. Watts, W. I. White, Philippa M. D. Wigan, J. Ll. Williams, R. A. Williams, J. B. Williamson, J. P. W. Young, T. M. Young.

DIPLOMAS

Diplomas in Child Health were granted, jointly with the Royal College of Surgeons of England, to S. Binder, F. S. W. Brimblecombe, and P. West, and to the other 89 successful candidates whose names are printed below in the report of the meeting of the Royal College of Surgeons of England.

Diplomas in Tropical Medicine and Hygiene, in Industrial Health, and in Physical Medicine were granted, jointly with the Royal College of Surgeons of England, to the successful candidates whose names are printed below in the report of the meeting of the Royal College of Surgeons of England.

Diplomas in Medical Radio-diagnosis were granted, jointly with the Royal College of Surgeons of England, to P. F. J. New and G. A. Smith.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a meeting of the Council of the Royal College of Surgeons of England held on October 12, with Sir Cecil Wakeley, President, in the chair, the Honorary Medal of the College was presented to Lord Webb-Johnson in recognition of his many generous acts and continued labours in the interest of the College during his eight years of Presidency.

Mr. A. McKie Reid was admitted as a Member of the Court of Examiners and Mr. E. C. B. Butler was admitted to the Board of Examiners in Dental Surgery (Surgical Section).

Mr. W. Kelsey Fry was co-opted to the Council to represent Dental Surgery in place of Professor R. V. Bradshaw (resigned).

Professor F. Wood Jones was reappointed as Sir William Collins Professor of Human and Comparative Anatomy and Conservator of the Anatomical Museum for a further year.

Professor D. Slome was admitted as Professor of Applied Physiology and Bernhard Baron Research Professor.

The Hallett Prize was presented to Tara Chandra (Lucknow University) and Malik Shaukat Hasan (Punjab University).

J. J. Fryatt, formerly of Lewes County School, was admitted as Macloghlin Scholar.

P. M. Scott, formerly of Epsom College, was nominated as the 58th Jenks Scholar.

A Diploma of Fellowship was granted to P. Das (Lucknow) and a Diploma of Membership was granted to R. P. Michael (University College Hospital).

Diplomas were granted, jointly with the Royal College of Physicians of London, to the following successful candidates:

DIPLOMA IN CHILD HEALTH.—R. P. Aronson, Anne L. Barlow, Dorothy V. Bignell, Winifrid M. Bond, I. S. Booth, Elspeth S. K. Campbell, N. Chaliha, Patricia Chippindale, S. A. Chowdhury, Jill C. Clark, Pauline M. Cole, Maureen D. Connolly, Lorna H. Cooper, Leonora A. Crawford, Jean M. Dance, Cecile R. Doniger, A. S. Dunn, H. G. Dunn, B. R. Eaton, Sarah Evans, Sheila M. Forsyth, W. P. Foster, Catherine E. E. Frain-Bell, Joy K. Goodacre, Ruth Goodier, Anne Guy, Eve Hammer, D. McR. Hanna, S. A. H.

Haqqani, R. P. Harwood, J. C. Haworth, Margaret I. Hendrie, H. Herlinger, Rachel M. Hickinbotham, Eugenie C. Illingworth, R. J. Isaac, Elizabeth M. Johnson, D. V. M. Jones, M. C. Joseph, P. Kalyanikutty, B. Kaminer, K. B. Kapur, K. R. Keay, M. Kennedy, J. D. Kerr, B. S. Kulkarni, Lillian J. Letty, C. S. Livingstone, Freda W. Lunt, J. B. Lyn-Jones, D. A. McGreal, Blanche M. MacIver, R. S. Male, A. Mohammad, C. M. Monro, S. A. M. Morton, M. J. Murray, E. M. K. Muwazi, Sylvia N. Nabarro, D. S. Nadkarni, J. G. Neville, D. O'Brien, T. E. Oppé, R. H. Percival, S. Prakash, Elizabeth Preston-Thomas, L. Rabinowitz, Irene Rajaratnam, K. V. Robinson, Christine M. Rooke, R. G. Rooney, J. Rubie, M. L. Sehgal, S. H. Shah, J. F. Skone, R. W. Smithells, Rosemary Stephens, Margaret E. R. Stoneman, Elizabeth G. S. Summerhayes, G. T. Tandy, C. Taylor, J. H. Thomas, Margaret R. Topping, Iris V. I. Ward, Pamela E. Warner, Evelyn D. Watkins, Elizabeth L. Watson, Mary B. Watson, S. T. Winter.

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—C. B. Andrade, J. E. Azar, S. Bell, B. Blewitt, G. F. J. Campion, Margaret T. Chambers, J. G. Craddock, S. K. Das, R. C. Desai, S. T. Gaballa, J. M. B. Garrod, H. M. J. Gilles, C. E. M. Gunther, Ursula M. Hay, R. G. P. Heard, K. Jambundabongse, Lillyan G. Jayewardene, A. M. Khan, V. J. Kinariwala, K. J. Lie, L. E. Lie-Injo, W. C. D. Lovett, Marie D. Merchant, E. D. Myers, S. E. N.-A. Otoo, W. Peters, H. M. G. Shanly, L. Silverstone, J. S. Sood, M. S. Vaidya, S. Vaishnava, J. L. C. Whitcombe, A. Zahra.

DIPLOMA IN INDUSTRIAL HEALTH.—J. A. Dryden, D. G. Evans, I. S. Eve, S. D. G. N. Gowda, M. S. Kataria, J. C. McDonald, R. A. G. Smith, P. A. M. van de Linde.

DIPLOMA IN PHYSICAL MEDICINE.—W. St. J. Buckler, D. A. Kininmonth, J. B. Stewart, H. F. B. Symons, D. L. Woolf, C. B. Wynn-Parry.

DIPLOMA IN MEDICAL RADIO-DIAGNOSIS.—G. A. Smith.

St. Nicholas Hospital, Plumstead, was recognized under paragraph 23 of the F.R.C.S. regulations.

The Council received from Dr. L. T. Clarke, of Birmingham, a curtain embroidered with the arms of the College as a background for displaying the mace, and from Mr. R. J. Willan a silver gilt chain for the President's badge of office.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the Royal College of Surgeons of Edinburgh held on October 25, with Mr. W. Quarry Wood, President, in the chair, the following who had passed the requisite examinations were admitted Fellows: E. Cameron, H. McK. Carey, A. F. Crook, A. P. McE. Forrest, A. Hart, R. F. Hendtlass, R. P. Hewitson, S. D. Joshi, R. T. S. Louttit, J. A. Mantle, N. G. Mehta, H. C. Reid, A. R. G. Salem, J. T. Shearer, M. N. Tempest, R. Yaholnitsky.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

Professor H. N. Green will deliver the Dr. John Burns Lecture in the Hall of the Royal Faculty of Physicians and Surgeons, 242, St. Vincent Street, Glasgow, on Wednesday, November 15, at 5 p.m. The title of the lecture is "The Fundamental Nature of Shock." All medical practitioners are invited to attend.

EPIDEMIOLOGICAL NOTES

Poliomyelitis

The notifications of poliomyelitis in the week ending October 21 were: paralytic, 197 (223); non-paralytic, 81 (85); total, 278 (308). The figures for the previous week are in parentheses. Notifications for the corresponding week in 1947 and 1949 totalled 288 and 414 respectively. Total uncorrected notifications for 1950 to and including the week under review are 7,290. The corresponding figures for 1947, 1948, and 1949 were 7,742, 1,905, and 4,892 respectively.

Devon (7) and Cheshire (5) showed a material increase in notifications; increases elsewhere were comparatively insignificant. Lancashire registered a large decrease (11) compared with the preceding week; Gloucester showed a decrease of 8, Wilts 6, and Hertford, Surrey, and the West Riding 5 each. Elsewhere small decreases were generally distributed. The total reduction in notifications in the week under review compared with the preceding week was 30, composed of 26 paralytic and 4 non-paralytic. The steady decrease in weekly notifications is satisfactory.

Quarterly Returns for Eire

The birth rate during the second quarter of 1950 was 22.5 per 1,000, being 0.3 above the June quarter of 1949. The infant mortality was 44 per 1,000 registered births, compared with 50 for the corresponding quarter of the preceding year. The general death rate was 12.9, and was 0.4 below the rate for the previous June quarter. Deaths from respiratory tuberculosis were 501, and 147 from other forms of tuberculosis: these were 86 and 5 respectively below the numbers of the second quarter of 1949.

Infant Mortality in England and Wales

The provisional figures for England and Wales for the third quarter of this year show that the infant mortality rate, 24 per 1,000 live births, and the stillbirth rate, 22.3 per 1,000 total births, were the lowest rates ever recorded for any quarter.

Discussion of Table

In *England and Wales* the largest variations in the trends of infectious diseases were increases in the number of notifications of measles 1,095 and scarlet fever 129, and a decrease of 45 for acute poliomyelitis.

An increase in the incidence of measles occurred throughout the country, but the rise was larger in the north than in the south; the largest increases were Lancashire 236, Yorkshire West Riding 206, and Derbyshire 150. The largest rise in the number of notifications of scarlet fever was 33 in Warwickshire. The feature of the returns for diphtheria was an increase of 3 in Warwickshire and a decrease of 3 in Durham. The largest fluctuation in the local trends of whooping-cough was an increase of 37 in Lancashire.

The chief centres of dysentery were Lancashire 37 (Droylsden U.D. 9); Leicestershire 28 (Leicester C.B. 27); Surrey 18 (Surbiton M.B. 17); London 17; Yorkshire West Riding 17; Lincolnshire 10 (Scunthorpe M.B. 10).

The largest returns for acute poliomyelitis were Lancashire 31 (Liverpool C.B. 10, Manchester C.B. 8); Yorkshire West Riding 28 (Leeds C.B. 5, Sheffield C.B. 5); Gloucestershire 24 (Bristol C.B. 14); Kent 19 (Orpington U.D. 11); Surrey 15; London 14; Warwickshire 12 (Birmingham C.B. 10); Devonshire 11; Middlesex 10.

In *Scotland* decreases were recorded in the number of notifications of measles 52, scarlet fever 23, acute poliomyelitis 10, while increases were reported for whooping-cough 42 and dysentery 33. The incidence of scarlet fever declined in all areas except the south-eastern area, where a rise of 3 was recorded in the number of notifications. The notifications of dysentery have increased for four consecutive weeks and are now at the highest level since April. The largest returns of dysentery were: Glasgow 58, Dumfries 39, Stirling county 33, Edinburgh 15, Lanark county 12. The largest returns of acute poliomyelitis were: Glasgow 8, Ayr county 6, Angus county 4, Ross and Cromarty county 3.

In *Eire* an increase of 10 in the number of notifications of measles and a decrease of 12 for whooping-cough were recorded. An outbreak of measles involving 27 notifications was reported from Wicklow, Rathdown R.D. Whooping-cough has declined throughout the country during the past three weeks with the exception of Dublin C.B., where a slight rise has occurred, and 35 of the 41 cases were notified in this city during the week reviewed.

In *Northern Ireland* only small variations occurred in the trends of infectious diseases for the country. The largest local fluctuations were an increase of 13 in the notifications of measles in Armagh county and an increase of 11 in the notifications of scarlet fever in Down county.

Week Ending October 21

The notifications of infectious diseases in England and Wales during the week included scarlet fever 1,227, whooping-cough 2,674, diphtheria 42, measles 5,876, acute pneumonia 432, acute poliomyelitis 278, dysentery 169, paratyphoid fever 13, typhoid fever 3.

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INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended October 14.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1950 (a)	1950 (b)	1950 (c)	1950 (d)	1950 (e)	1949 (Corresponding Week) (a)	1949 (b)	1949 (c)	1949 (d)	1949 (e)
Meningococcal infection	28	3	16	4	1	29	3	12	1	1
Deaths		1	1				1	—		
Diphtheria	40	5	14	5	4	85	9	32	1	1
Deaths	—	—	—	—	—	1	—	—	—	—
Dysentery	180	17	182	1	4	179	10	75	2	3
Deaths		—			—				—	—
Encephalitis, acute	2	—	—		—	—	—	—	—	—
Deaths		—		—			—			
Erysipelas			14	4	1			31	10	2
Deaths							—			
Infective enteritis or diarrhoea under 2 years				20	18				100	
Deaths	11		4	2	—	40	1	12	9	4
Measles*	5,009	303	145	97	72	992	44	42	108	42
Deaths†		—	—	1	—			—	—	—
Ophthalmia neonatorum	45	3	14		—	43	2	8	—	—
Deaths										
Paratyphoid fever	8	2	—		—	13	—	3 (B)	3 (B)	—
Deaths	—		—		—	1	—	—	—	—
Pneumonia, influenzal	382	18	5		3	354	23	2	2	4
Deaths (from influenza)‡	5	2	1	—	—	6	2	1	—	—
Pneumonia, primary	123	19	130	¶ 3	7	135	23	164	25 9	7
Poliomyelitis, acute	308	14	39	1	4	463	68	3	4	—
Deaths§	11	1		—		20	3			
Puerperal fever			7				—	13		
Deaths										
Puerperal pyrexia‖	91	7	6		—	108	7	8	1	—
Deaths							—			
Relapsing fever	—	—			—	1	1			—
Deaths										
Scarlet fever	1,193	81	139	72	70	1,844	155	243	85	144
Deaths†		—	—	—	—			—	—	—
Smallpox	—	—	—		—	—	—	—	—	—
Deaths					—				—	—
Typhoid fever	7	1	—	3	—	14	1	1	4	1
Deaths	—	—	—		—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths					—				—	—
Whooping-cough	2,461	231	264	41	30	875	51	68	31	32
Deaths	3	—	—	1	—	3	—	—	1	—
Deaths (0–1 year)	222	21	32	12	8	258	32	32	25	13
Deaths (excluding stillbirths)	4,417	682	534	173	112	4,079	635	530	144	100
Annual death rate (per 1,000 persons living)			10·7					10·6	8·9	
Live births	7,439	1320	843	404	216	7,442	1163	858	395	264
Annual rate per 1,000 persons living			16·9					17·2	24·5	
Stillbirths	150	22	29			192	25	11		
Rate per 1,000 total births (including stillborn)			33					13		

* Measles is not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

¶ Primary pneumonia no longer notifiable in Eire.

Medical News

West Midlands Physicians Association

The inaugural meeting of the West Midlands Physicians Association was held in Birmingham on October 21. Sir Leonard Parsons, F.R.S., was elected president, and Professor A. P. Thomson, Dr. J. H. Sheldon, Professor W. M. Arnott, Dr. A. M. Nussey, Dr. S. R. F. Whittaker, and Dr. J. P. P. Stock were elected members of the executive committee. Dr. A. G. W. Whitfield was appointed secretary and treasurer.

Central Council for Health Education

On October 24 the Central Council for Health Education, founded 23 years ago, was reconstituted to consist of only 24 members. Of these, 15 are officially appointed representatives of the various associations of local authorities. The council will continue to organize and run training courses for members of local-authority staffs throughout the country. It will extend the material aid that it gives to individual local authorities. In addition, it plans a pilot experiment in education of the public concerning cancer, and the provision of teaching aids to assist doctors, midwives, and nurses in the preparation of expectant mothers for pregnancy and childbirth.

A message from the Minister of Health commented on the valuable work done by the council in providing expert advice and material for the assistance of local authorities on direct and personal education and on the instruction and training of personnel. He felt sure that the new and closer link with the local-authority associations would result in greater support of the council by local authorities and a consequent extension of authorities' health education activities. He thought that his Department's responsibilities for the dissemination of information on health and disease could best be carried out by the preservation of a proper balance between the central departments and the local authorities and voluntary organizations, and between general publicity and personal persuasion.

The Heberden Society

A clinical meeting of the Heberden Society was held on October 21 at the Canadian Red Cross Memorial Hospital, with Dr. E. G. L. Bywaters as host, and the president, Dr. W. S. C. Copeman, in the chair. Cases presented included rheumatic carditis, Still's disease, disseminated lupus erythematosus, temporal arteritis, hyperparathyroidism with chronic nephritis, dermatomyositis, and sarcoidosis.

Festival of Britain Accommodation

An inquiry has been received from Paris from the World Medical Association about the possibility of French doctors being received as paying guests by English doctors for the Festival of Britain next year. Hotel accommodation is already difficult to obtain. Anyone able to assist medical visitors from overseas in this way is asked to write to Dr. H. A. Sandiford, International Medical Visitors Bureau, B.M.A. House, stating what he is prepared to offer and the periods he can receive guests, with a note of any charges.

Thoracic Surgery Demonstrations in Spain

Mr. T. E. Holmes Sellors is visiting Madrid and Barcelona between October 20 and November 6 to demonstrate thoracic surgery and to lecture for the British Council. Dr. Parry Brown, who is accompanying Mr. Holmes Sellors as anaesthetist, will also give lectures on his specialty.

Christmas Seals

Some attractive seals for sticking on Christmas mail have been prepared by the National Association for the Prevention of Tuberculosis. They are sold at a ½d. each or 8s. for two sheets of 100. The money from their sale helps the N.A.P.T. in its programme of research and education for the prevention of tuberculosis. They may be obtained from the N.A.P.T. at Tavistock House North, Tavistock Square, London, W.C.1.

Sir Charles Hastings Lecture

The Sir Charles Hastings Lecture will be delivered by Sir Lionel Whitby in the Great Hall of B.M.A. House on November 22 at 6.30 p.m. His theme is "Can Disease Be Prevented?" Dr. Charles Hill will be in the chair. This is the first Hastings Lecture to be delivered since 1939, and it is intended primarily for the public. Doctors in the London area are asked to bring the lecture to the notice of the public. Admission is free by ticket obtainable from B.M.A. House, and small handbills advertising the lecture are available on application to the Public Relations Department, B.M.A. House, Tavistock Square, London, W.C.1, to any doctor willing and able to have them displayed.

Ross Award

The Ross Award was founded in 1949 by the standing committee of the Ross Institute, which resolved that it should be presented from time to time to persons who had distinguished themselves in the furtherance of Ronald Ross's ambition to control malaria on an extensive scale. The award has now been offered to Mehmed Aziz, M.B.E., chief health officer of Cyprus, for outstanding services in the control of malaria. He has worked for over thirty years in this field, and the Cyprus anopheline eradication scheme (1947–50) is largely due to him. This successful attempt to eradicate indigenous species of mosquito is a pioneering example to the world.

Van Meter Prize Award

The American Goiter Association again offers the Van Meter Prize Award of $300 and two honourable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The award will be made at the annual meeting of the association, which will be held in Columbus, Ohio, U.S.A., on May 24, 25, and 26, 1951, provided essays of sufficient merit are presented in competition. The competing essays may cover either clinical or research investigations; should not exceed 3,000 words in length; must be presented in English; and a typewritten double-spaced copy in duplicate sent to the corresponding secretary, Dr. George C. Shivers, 100, East Saint Vrain Street, Colorado Springs, Colorado, U.S.A., not later than March 1, 1951. A place will be reserved on the programme of the annual meeting for presentation of the prize award essay by the author, if it is possible for him to attend. The essay will be published in the annual *Proceedings* of the association.

Charing Cross Hospital

The Treasury has sanctioned the purchase of 47 acres for the site of the new Charing Cross Hospital and Medical School. The proposed site is at present occupied by Northwick Park Golf Club, and is within sight of Harrow School. The new hospital will provide accommodation for 800 in-patients, with an out-patients department and all other ancillary services. No date has yet been fixed for starting building operations.

Lebanon Hospital for Mental Diseases

The Lebanon Hospital, which celebrated its golden jubilee last August, was founded at Asfuriyeh, Beirut, by the Swiss missionary Theophilus Waldmeier. Before its advent the treatment of the insane in that part of the world was often primitive and cruel. The first home for the insane in Biblical lands, it remains to-day the only international inter-religious mental hospital in the Middle East. Several countries have provided buildings, of which there are now about 25. The hospital is governed by a general committee in London and an executive committee in Beirut. During its lifetime more than 14,000 patients have been treated, and modern methods of diagnosis and treatment are in use. The neuropsychiatric clinic of the hospital has been able to do much in the early treatment of mental and nervous disorders and in preventive psychiatry. Classes are held at the hospital for fourth-year students of the American University of Beirut. The hospital has not easily survived post-war financial difficulties, and fresh capital is needed for extensions and equipment, for developing the department of occupational therapy, and for building up a centre for the early treatment of mental disorders. Further information about the Lebanon Hospital may be obtained from the London Office of the Committee, Drayton House, Gordon Street, W.C.1, and tickets for a recital of poetry and music at Friends House at 7 p.m. on November 7 can be purchased at the same address.

Grenfell Association

The Grenfell Association, whose medical mission on behalf of settlers in Labrador and northern Newfoundland is so well known, is again this year offering for sale Christmas cards, stationery, and stamps, proceeds from which will go towards the support of the mission. An illustrated catalogue of the cards is now available, price 1d., from the secretary, Grenfell Association, 66, Victoria Street, S.W.1.

COMING EVENTS

R.C.S. of England

Sir Harry Platt will deliver the Bradshaw Lecture before the Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C., on Thursday, November 9, at 5 p.m. His subject is "Diagnosis and Prognosis in Sarcoma of Bone."

British Medical Students Association

The annual general meeting of the British Medical Students Association will be held at Manchester University on November 9–11.

Institute of Ophthalmology

A further series of advanced lectures will be given in the lecture theatre of the Institute of Ophthalmology, Judd Street, London, W.C., on various dates between November 10 and December 19, at 5.30 p.m. Admission to the lectures is free, and details will be published in the "Societies and Lectures" column week by week.

Chemotherapy of Cancer

A meeting of the Fine Chemicals Group of the Society of Chemical Industry will be held at the Royal Institution, 21, Albemarle Street, London, W., on Monday, November 13, at 7 p.m., when Professor A. Haddow, Director of the Chester Beatty Research Institute of the Royal Cancer Hospital, will deliver a lecture on "The Chemotherapy of Cancer." The subsequent discussion will be opened by Professor E. Boyland.

Maudsley Lecture

The twenty-fifth Maudsley Lecture will be delivered by Professor Aubrey Lewis before the Royal Medico-Psychological Association at the Royal Society of Medicine, Barnes Hall, 1, Wimpole Street, London, W., on Friday, November 17, at 2.15 p.m. His subject is "Henry Maudsley, His Work and Influence." Psychiatrists and other medical practitioners, psychologists, and members of the legal profession, teachers and students are invited to attend the lecture. Admission is without ticket.

Association of Army Psychiatrists

The eighth reunion of Army psychiatrists will be held at Slater's Restaurant, 142, Strand, London, W.C., on Saturday, November 18, from 7.30 to 10.30 p.m. Particulars may be obtained from the honorary secretary, Dr. J. C. Penton, The Old Farm House, 1, Gatehill Road, Northwood, Middlesex.

Course on Endocrinology

A course on recent therapeutic advances in endocrinology will be held at the Hôpital Laennec, Paris, from November 20 to 25. Professors and doctors of the faculties and hospitals of Paris, Geneva, Brussels, Liége, Lyons, and Toulouse will take part. The subscription for the course (4,000 francs) should be sent to Dr. Albeaux-Fernet at the Hôpital Laennec. The course is divided into two sections: series A (clinical) and series B (biological). Those proposing to attend should indicate which course they wish to take.

SOCIETIES AND LECTURES

A fee is charged or a ticket is required for attending lectures marked ●. Application should be made first to the institution concerned.

Monday

INSTITUTE OF LARYNGOLOGY AND OTOLOGY, 330, Gray's Inn Road, London, W.C.—November 6, 4.30 p.m., *"The Treatment of Facial Paralysis,"* by Miss D. J. Collier.

●INSTITUTE OF NEUROLOGY, National Hospital, Queen Square, London, W.C.—November 6, 5 p.m., *"Surgical Treatment of Cerebral Tumours in Children,"* by Mr. W. McKissock.

INSTITUTE OF OPHTHALMOLOGY (UNIVERSITY OF LONDON), Judd Street, London, W.C.—November 6, 5.30 p.m., *"The Management of Squint in Children,"* by Mr. T. K. Lyle.

INSTITUTE OF PSYCHIATRY, Maudsley Hospital, Denmark Hill, London, S.E.—November 6, 4.30 p.m., lecture-demonstration for postgraduates by Dr. E. Stengel.

INSTITUTE OF UROLOGY (UNIVERSITY OF LONDON).—At St. Peter's Hospital, Henrietta Street, London, W.C., November 6, 3 p.m., ward round by Mr. J. G. Sandrey.

Tuesday

BRITISH POSTGRADUATE MEDICAL FEDERATION.—At London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C., November 7, 5.30 p.m., *"Viruses as Causes of Disease,"* by Dr. C. H. Andrewes, F.R.S.

●INSTITUTE OF DERMATOLOGY, Lisle Street, Leicester Square, London, W.C.—November 7, 5 p.m., *"Lupus Erythematosus,"* by Dr. W. N. Goldsmith.

INSTITUTE OF NEUROLOGY, National Hospital, Queen Square, London, W.C.—November 7, 5 p.m., *"The Problem of the Hippocampus,"* by Professor W. E. le Gros Clark, F.R.S.

INSTITUTE OF UROLOGY (UNIVERSITY OF LONDON).—(1) At St. Paul's Hospital, Henrietta Street, London, W.C., November 7, 11 a.m., demonstration of cardiovascular syphilis by Dr. E. G. B. Calvert; (2) at St. Peter's Hospital, Henrietta Street, London, W.C., November 7, 5 p.m., *"Transvesical Operations on the Prostate,"* by Mr. A. R. C. Higham.

●ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—November 7, 3.45 p.m., *"The Germ Layers,"* by Professor J. D. Boyd.

ROYAL EYE HOSPITAL, St. George's Circus, Southwark, London, S.E.—November 7, 5 p.m., *"Genetics in Ophthalmology,"* by Professor Arnold Sorsby.

UNIVERSITY COLLEGE, Gower Street, London, W.C.—November 7, 5.15 p.m., *"Some Recent Advances in the Physiology of Vision,"* by Professor Hamilton Hartridge, F.R.S.

Wednesday

●INSTITUTE OF DERMATOLOGY, Lisle Street, Leicester Square, London, W.C.—November 8, 5 p.m., *"Medical Mycology,"* lecture-demonstration by Dr. R. W. Riddell.

INSTITUTE OF UROLOGY (UNIVERSITY OF LONDON).—At St. Paul's Hospital, Henrietta Street, London, W.C., November 8, (1) 11 a.m., *"Signs, Symptoms, and Asymptomatic Carrier State of Gonorrhoea,"* by Dr. A. H. Harkness; (2) 3.30 p.m., museum demonstration by Mr. J. D. Fergusson; (3) 5 p.m., *"Endoscopic Operations on the Prostate,"* by Mr. R. Ogier Ward.

●ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—November 8, 3.45 p.m., *"The Development of the Intestinal Tract,"* by Professor J. D. Boyd.

ROYAL EYE HOSPITAL, St. George's Circus, Southwark, London, S.E.—November 8, 4 p.m., *"Clinical Ophthalmology"* (Revision), by Mr. R. A. Burn and Mr. R. P. Crick; 5.30 p.m., *"Ophthalmic Neurology,"* by Mr. L. H. Savin.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, London, W.—November 8, 3.30 p.m., *"The Role of Chemistry in Relation to Public Health,"* by Mr. C. J. Regan, B.Sc., F.R.I.C.

SOUTH-WEST LONDON MEDICAL SOCIETY.—At Bolingbroke Hospital, Wandsworth Common, London, S.W., November 8, 8.30 p.m., *"Urinary Infections,"* by Mr. H. K. Vernon.

YORKSHIRE SOCIETY OF ANAESTHETISTS.—At the General Infirmary at Leeds, November 8, 8 p.m., *"The Problem of Apnoea,"* by Dr. Michael D. Nosworthy.

Thursday

ALFRED ADLER MEDICAL SOCIETY.—At 11, Chandos Street, London, W., November 9, 8 p.m., *"Emotional Immaturity and Masculine Protest Syndrome,"* by Dr. J. Bierer. The discussion will be opened by Dr. Alan Maberly.

BRITISH POSTGRADUATE MEDICAL FEDERATION.—At London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C., November 9, 5.30 p.m., *"Inherited Immunity,"* by Dr. H. J. Parish.

DREADNOUGHT SEAMEN'S HOSPITAL, Greenwich, S.E.—November 9, 3 p.m., demonstration of surgical cases by Mr. Stephen Power.

HONYMAN GILLESPIE LECTURE.—At University New Buildings (Anatomy Theatre), Teviot Place, Edinburgh, November 9, 5 p.m., *"The Surgical Significance of the Intestinal Vascular Patterns,"* by Mr J. A. Ross.

●INSTITUTE OF DERMATOLOGY, Lisle Street, Leicester Square, London, W.C.—November 9, 5 p.m., *"Drug Eruptions,"* by Dr. G. B. Mitchell-Heggs.

INSTITUTE OF PSYCHIATRY, Maudsley Hospital, Denmark Hill, London, S.E.—November 9, 3 p.m., *"Metabolic Processes Supporting the Activities of the Brain,"* by Dr. H. McIlwain.

INSTITUTE OF UROLOGY (UNIVERSITY OF LONDON).—At St. Paul's Hospital, Henrietta Street, London, W.C., November 9, (1) 11 a.m., *"Local and Systemic Complications of Gonorrhoea,"* by Dr. A. H. Harkness; (2) 5 p.m., *"Retropubic Operations on the Prostate,"* by Mr. A. W. Badenoch.

ROYAL ARMY MEDICAL COLLEGE.—At Lecture Theatre, John Islip Street, London, S.W., November 9, 5 p.m., *"The Value of Immediate Plastic Procedures in Trauma,"* by Sir Harold Gillies.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—November 9, 3 p.m., *"Ocular Aspects of Cranial Nerves,"* by Professor Brodie Hughes; 5 p.m., *"Diagnosis and Prognosis in Sarcoma of Bone,"* Bradshaw Lecture by Sir Harry Platt.

ROYAL EYE HOSPITAL, St. George's Circus, Southwark, London, S.E.—November 9, 5.30 p.m., *"Operative Surgery,"* by Miss J. M. Dollar.

ROYAL SOCIETY, Burlington House, Piccadilly, London, W.—November 9, 4.30 p.m., *"The Development of Microbiology,"* Leeuwenhoek Lecture by Sir Paul Fildes, F.R.S.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, Hyde Park Corner, London, S.W.—November 9, 4.30 p.m., lecture-demonstration on psychiatry by Sir Paul Mallinson.

UNIVERSITY OF WALES: WELSH NATIONAL SCHOOL OF MEDICINE, Reardon Smith Lecture Theatre, Park Place, Cardiff.—November 9, 8 p.m., *"Infection and Disease, with Special Reference to Tuberculosis,"* by Professor F. R. G. Heaf.

WINGFIELD-MORRIS ORTHOPAEDIC HOSPITAL: NUFFIELD ORTHOPAEDIC CENTRE, Oxford.—November 9, 8.30 p.m., *"Congenital Dislocation of Hip: A Revision and Assessment of Results of 200 Cases,"* by Dr. R. Esteve.

WREXHAM AND DISTRICT CLINICAL SOCIETY.—At Wynnstay Arms Hotel, Wrexham, November 9, 7.30 p.m., *"Gastroscopy—Its Value in Diagnosis and Treatment,"* by Mr. Howell Hughes.

Friday

INSTITUTE OF OPHTHALMOLOGY, Judd Street, London, W.C.—November 10, 5.30 p.m., *"The Use of Irradiation in Ophthalmology,"* by Mr. P. Jameson Evans.

●MAIDA VALE HOSPITAL MEDICAL SCHOOL, London, W.—November 10, 5 p.m., clinical neurological demonstration by Dr. Helen Dimsdale.

●ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—November 10, 3.45 p.m., *"The Development of the Heart and Circulatory System,"* by Professor J. D. Boyd.

ROYAL MEDICAL SOCIETY, 7, Melbourne Place, Edinburgh.—November 10, 8 p.m., Symposium: *"Anaemia."*

UNIVERSITY COLLEGE, Gower Street, London, W.C.—November 10, 5.15 p.m., *"Chemical Transmitters,"* by Dr. W. S. Feldberg, F.R.S.

●WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—At South Kensington Hotel, 41, Queen's Gate Terrace, London, S.W., November 10, 7.15 for 7.45 p.m., dinner meeting. *"Radiological Pitfalls,"* by Dr. Cochrane Shanks.

Saturday

KENT PAEDIATRIC SOCIETY.—At Farnborough Hospital, Kent, November 11, 2.30 p.m., "Brains Trust." Question Master, Dr. N. M. Jacoby, with Dr. Appleby, Miss Forstner, Miss Harvie, and Dr. Levs.

SOUTH-EAST METROPOLITAN REGIONAL TUBERCULOSIS SOCIETY.—At Lecture Theatre, King's College Hospital, Denmark Hill, London, S.E., November 11, 10.30 for 11 a.m., *"The Evolution of the Surgical Treatment of Pulmonary Tuberculosis,"* by Mr. J. B. Hunter. To be followed by annual luncheon and annual general meeting of the society.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Dewar.—On October 26, 1950, at Newcastle-upon-Tyne, to wife of Dr. H. A. Dewar, twins—son and daughter.

McGill.—On October 24, 1950, at Connaught Nursing Home, Cardiff, to Dr. Eileen (formerly Clarke), wife of Dr. A. D. McGill, a daughter.

Rogers.—On October 20, 1950, at the Sudbridge Nursing Home, Stroud, to Rosamond (formerly Aldrich), wife of Dr. S. C. Rogers, a daughter—Anne Frances.

Russell Stoneham.—On October 17, 1950, at Windsor, to Pauline (formerly Walker), wife of Dr. F. J. Russell Stoneham, a sister for Angela—Heather.

Sheldon.—On October 21, 1950, at Westminster Hospital, London, to Beryl, wife of Dr J. V. Sheldon, a brother for Richard.

Thomson.—On October 25, 1950, to Nancy S. M. Thomson (formerly Milne), M.B., Ch.B., wife of Thomas Nairn Thomson, B.Sc.(Econ.), Ivybank, Blairgowrie, Perthshire, a daughter.

Wilson.—On September 21, 1950, to Jane (Dr. Ruth Audrey Ainsworth), wife of William Weatherston Wilson, F.R.C.S., a son.

DEATHS

Graham.—On October 16, 1950, at Cell Barnes Hospital, St. Albans, Herts, Malcolm Frank Douglas Graham, M.C.P.S.Ont., Captain, I.M.S., retired.

Hipwell.—On October 21, 1950, at Cedar Grange, Caterham, Surrey, Harry Hipwell, M.D., late of 18, Elgin Road, London, N., aged 91.

Jones.—On October 23, 1950, at Edinburgh, Guy Carleton Jones, C.M.G., M.D., F.A.C.S., Major-General, late R.C.A.M.C., of 34, Plewlands Gardens, Edinburgh, and Ottawa, Canada.

Lucy.—On October 20, 1950, at his home, Penn Court, Hollingbourne, Kent, Sidney Herbert Reginald Lucy, M.R.C.S., L.R.C.P., late of Malaya.

McCrea.—On October 23, 1950, at "Lisna," Wargrave, Berks, John McCrea, M.B., B.Ch., aged 78.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Nail Biting

Q.—*Can you suggest any treatment for nail biting in a girl aged 3½ years who, despite her mother's efforts with sticking plaster, gloves, and aloes—and chastisement—still persists in biting her nails whenever the opportunity offers?*

A.—The treatment of nail biting can be successful only if the aetiology of the habit is known and understood. Studies of nail biters, both adults and children, show that this arises from excessive emotional tension. The work of Bovet (*Schweiz. Arch. Neurol. Psychiat.*, 1942, **49**, 39; Ibid., 1942, **50**, 14) demonstrates that nail biting represents a sort of compromise between impulse and inhibition, in which frustration is the excitant, and is closely allied to fear. Again, from a careful survey of a large number of college students (Coleman, J. C., and McCalley, J. E., *J. abnorm. soc. Psychol.*, 1948, **43**, 517) the aetiology of nail biting was shown to be closely allied with feelings of inadequacy and insecurity, the latter especially in relation to parental figures. A number of the nail biters recalled this habit being provoked by feelings that they could not depend upon any consistent discipline, and so were unsure of what they should do. This set up feelings of guilt which were to some degree satisfied by biting, i.e., a masochistic reaction. There is a close connexion between this habit and anger, and the same group of students showed associations to angry feelings when as children they were not allowed to be independent.

In this case there is a Shakespearian flavour about the mother's reaction. "I will bite my thumb at them," says Capulet, "*which is a disgrace to them if they bear it.*" The small girl's nail biting, to judge by the harsh treatment it has evoked, seems to her mother like a challenge. The scene is played on: "Do you bite your thumb at me, Sir?" to which the dogged answer is: "*I bite my thumb.*" In Romeo and Juliet there succeeds the clash of swords; in the nursery the clash of personalities, bitter aloes, chastisement, and the transmutation of a temporary anxiety sign into a fixed habit. Rightly, if perhaps unconsciously, the mother has diagnosed biting the nail as a sign of anger, but she has failed to recognize that this anger is a reaction to fear, especially the fear of not being loved. The child is biting herself rather than bite her mother, and the cure lies in maternal tenderness. It is clear that to try to suppress the habit by stern measures will only intensify the anxiety that induces it. The first thing is to find out what is the main cause of excessive tension and unhappiness, and to relieve these conditions. There is also the habit factor to be considered. Rough nails provide irritation, and biting these can be a relief. It is useful to soften the nails by castor oil or olive oil to avoid rough edges. This will be more effective if the mother can make this appear not as a punishment but as an act of love; such a nice child should have nice nails—sentimental perhaps, but going to the root of the trouble.

Eclampsia

Q.—*What are the most recent figures for the incidence of, and the maternal and foetal mortality from, eclampsia in this country? Also, why is caesarean section held in low repute as the means of delivering the eclamptic patient?*

A.—The number of cases of eclampsia occurring in any one year in this country is unknown: the disease is not notifiable, not all cases are admitted to hospital, and not every hospital publishes an annual report. Moreover, the incidence varies widely from one part of the country to another, being low in London and the South-east, and relatively high in the industrial areas of the North. Some country areas with less efficient maternity services may also have more cases.

A rough estimate for one large provincial city is 1 case of eclampsia in 700 deliveries, and this may be compared with a recent figure of 1 in 500 to 800 deliveries in the U.S.A., given by N. J. Eastman in *Williams' Obstetrics*, 10th edition, 1950 (Appleton-Century-Crofts, New York). The figures published by J. B. Dewar and W. I. C. Morris (*J. Obstet. Gynaec. Brit. Emp.*, 1947, **54**, 417) may also be helpful. These are concerned with the counties of Ayr, Dumfries, Kirkcudbright, and Wigtown (population approximately 500,000). Obstetrical emergencies admitted from this area included 88 cases of eclampsia during the five years 1939–43, and 48 cases during the subsequent four years.

The results of treatment have improved in recent years, but vary considerably with the standard of medical service in different areas of the country. Moreover, the statistics for any hospital depend on whether it receives every case of eclampsia occurring in its area, or whether it receives only the severe cases. What can be achieved is shown by Dewar and Morris, who, using rectal "tribromoethanol" in 44 consecutive cases, record only two maternal deaths (4.5%)—as compared with a maternal mortality of 20.5% in the previous 88 cases. R. J. Kellar (*Modern Trends in Obstetrics and Gynaecology*, 1950. Edited by R. K. Bowes. London: Butterworth) mentions that, using the same method, he treated about 40 cases without a single maternal death, while in the practice of the Simpson Maternity Hospital there were four deaths in the last 101 consecutive cases. Other figures in the literature suggest a general conclusion that the maternal mortality, given early and adequate treatment, is about 4 or 5%.

The number of stillbirths and neonatal deaths is also less than it was, but probably remains in the region of 40%. It is doubtful whether many hospitals can improve on the 31% combined stillbirth and neonatal death rate recorded by Dewar and Morris.

Caesarean section in the treatment of eclampsia is held in low repute because of the appalling results which attended its use in the earlier part of this century. Opinion was crystallized by papers by J. Munro Kerr and Eardley Holland in 1921 (*J. Obstet. Gynaec. Brit. Emp.*, 1921, **28**, 338, 358), in which it was shown that the maternal mortality was 32% and the foetal and infant mortality 50%. At that time relatively crude anaesthetics were being given to women suffering from liver necrosis, oedema of the lungs, and profound metabolic upset; the operative technique was not so good as at present; and the operation was often reserved for the worst type of case.

Nowadays it is generally recognized that, provided modern methods of anaesthesia are available, caesarean section has a definite although quite small place in the treatment of eclampsia. The indications are: (*a*) When eclampsia is complicated by some other obstetric condition, such as disproportion, demanding abdominal delivery. (*b*) Sometimes in the interests of the baby (in an elderly primigravida, for example) when the case is seen at the onset of fits, and when labour is not in progress, and when a long hard cervix makes it clear that delivery cannot be expected for a long time. (*c*) In the comparatively rare case when the patient recovers from eclampsia without going into labour and without the foetus dying *in utero*, and when an unripe cervix or high presenting part makes it unwise to carry out surgical induction of labour.

Choline Chloride

Q.—*What is choline chloride and what are its actions? Where is it found naturally?*

A.—Choline chloride, $Cl.N(CH_3)_3.C_2H_4.OH$, has a very weak action resembling that of acetylcholine, though its depressant effect on the circulation is almost imperceptible. Acetylcholine is a powerful stimulant of the parasympathetic nervous system. It therefore slows the heart, dilates the peripheral blood vessels, and contracts the pupil and the intestinal and bladder musculature. As acetylcholine is rapidly destroyed by choline esterase its use in therapeutics is impracticable and drugs with a more persistent action are employed. Choline chloride has been used in doses of 10 gr. (0.65 g.) intravenously, and there are various proprietary preparations of it, but a much more satisfactory and powerful drug is carbamylcholine chloride, of which the official name is carbachol (*B.P.*). This is given in doses

of 1/240 to 1/120 gr. (0.27 to 0.54 mg.) subcutaneously or intramuscularly—never intravenously. It is used to relieve postoperative paralytic ileus and to promote micturition in paralysis of the bladder. It should not be given to collapsed patients or asthmatics, and should be used with great caution in the elderly. Atropine is a specific antidote to it. Acetyl-β-methylcholine chloride is sometimes employed in the treatment of supraventricular paroxysmal tachycardia in a dose of 25 mg. subcutaneously.

Choline, which is a member of the vitamin-B complex, occurs naturally in many foodstuffs. It is present in meat, fish, cheese, and most vegetables. Egg yolk and to a less extent liver are its richest sources. It is used in the synthesis of substances necessary for fat transportation, and animal experiments suggest that it prevents and may even cure fatty degeneration of the liver. It has not been much used for this purpose in a medicinal form in practical therapeutics, though foods rich in choline may be of some value in the prevention and treatment of acute and chronic hepatitis.

Choline and Coronary Thrombosis

Q.—*A patient suffering from coronary thrombosis has read in the lay press about the use in America of choline in the treatment of this condition, and he wishes to know if it would be of any benefit to him. Can you give me any information about this?*

A.—Choline is obtainable in this country and may be given in doses of 10–20 g. daily by mouth. There is evidence that this substance helps to prevent experimental atherosclerosis in rabbits and that it may even cause atheromatous lesions to disappear. Morrison and Gonzalez (*Amer. Heart J.*, 1950, **39**, 729) tested its effect on a series of 115 patients with proved coronary thrombosis and compared the course of the tested cases with that of 115 untreated controls which were similar in other respects. During the time under review (1 to 3 years) there were 14 deaths in the treated group and 35 in the untreated. There was no significant difference in the incidence of angina pectoris or effort dyspnoea.

For a general account of choline see the previous answer.

Stress and Schizophrenia

Q.—*Do strain and stress provoke the onset of schizophrenia?*

A.—Yes. Kallmann in his report to the International Congress of Psychiatry, Paris, 1950, on his immense collection of 953 pairs of twins, in which at least one twin in each pair had become schizophrenic, finds evidence that an attack of schizophrenia can be precipitated by physical and emotional strains, pregnancy, acute infections, or a drastic reducing diet. Other observers—e.g., Schulz—have found that in some cases minor head injuries, such as concussion, may have played a part. The main causation, however, cannot be ascribed to such factors. Hereditary influence is the only constant causative factor known; but by itself it is often insufficient, and an environmental noxa may be required to bring on the psychosis. There seems, however, to be little difference in subsequent course and outcome, whether or not the illness has been provoked (or could have been provoked) by an environmental stress.

Red Perspiration

Q.—*I have recently seen a case of what might be termed "red perspiration." The axillary sweat was definitely red, and it stained the undergarments. What is the cause of this condition?*

A.—Red sweat in the axillae is probably always due to either bacteria or parasitic fungi on the axillary hairs. If fungus infection is not evident macroscopically the hairs should be examined under a microscope and cultures made. The treatment is to shave the axillae and apply a mild antiseptic.

Heparin and Hyaluronidase

Q.—*What is the rationale and what are the indications for the administration of hyaluronidase with heparin?*

A.—On theoretical grounds the addition of hyaluronidase to heparin should result in accelerated absorption of the heparin from a subcutaneous depot. This effect has been demonstrated recently by Tuchman and Moolten (*Amer. J. med. Sci.*, 1950, **219**, 147). They found that, if the site of injection was first infiltrated with a small quantity of hyaluronidase, repeated subcutaneous injections of heparin could be given without pain and would produce a prolongation of the clotting time comparable to that achieved by using the same dose intravenously. They point out that this method of administration makes it possible for nurses to give the injection.

Kimmelstiel–Wilson Syndrome

Q.—*What is the Kimmelstiel–Wilson syndrome?*

A.—P. Kimmelstiel and C. Wilson (*Amer. J. Path.*, 1936, **12**, 83) described a renal lesion, which they called intercapillary glomerulosclerosis, in eight patients dying with diabetes mellitus. A characteristic symptom-complex had been noted in their patients, the main features of which were diabetes mellitus, albuminuria, massive oedema, hypertension, and renal failure. Since the original description the frequency of combined diabetic and hypertensive retinopathy, anaemia, and lipoid cells in the urinary deposit has been stressed. Riskin and his colleagues have written a useful review of the subject, with a full bibliography (*Medicine*, 1948, **27**, 429).

East Africa and Pulmonary Tuberculosis

Q.—*Is the climate of East Africa likely to have any adverse effect on a person who has arrested pulmonary tuberculosis and wishes to emigrate there?*

A.—Climate *per se* has little effect on tuberculosis of the lungs, though the hot moist climate of the coast may not be advantageous. The dangers arise partly from other diseases—for instance, malaria—which may have a debilitating effect, partly in relation to nutrition, partly from the tendency to lead too strenuous a life in a country where games are universally played and where rural life (especially on farms) is apt to lead to unexpected physical strain, and partly from the nervous strain (often called tropical neurasthenia) which is sometimes a marked feature of life in the Tropics, especially in small communities. Another point of importance is that although in the main centres of population expert medical advice may be readily available this is rarely true of the rural areas.

NOTES AND COMMENTS

Dispensing of P.A.S.—Dr. JACK ESSEX (London) writes: With reference to "Any Questions?" (October 14, p. 901) in which cachets of 1.5 g. of P.A.S. are recommended for easy administration, I would draw attention to the availability in this country of dragées of sodium P.A.S. each providing 0.34 g. These are smaller and much easier to swallow than the larger presentation, and are not resisted by children or patients with laryngeal lesions. The necessity of swallowing a greater number at each dose is surely inconsequential compared with the advantage of easy deglutition.

Correction.—Dr. R. D. LAWRENCE (London, W.1) writes: May I ask you to correct a bad error I made in the list of stimulating writers on medical teaching in my article "The Training of Clinical Teachers" (August 26, p. 482)? The name Ffrench should have been Ffrangcon Roberts, to whom I apologize.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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